

# AMERICAN VETERINARY REVIEW.

OCTOBER, 1904.

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## EDITORIAL.

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### EUROPEAN CHRONICLES.

AIX-LES-BAINS, August 20th, 1904.

THE QUESTION OF IMMUNITY OF BOVINES TOWARDS GLANDERS, and the properties of their serums after repeated injections of glanderous virus, has been the subject of interesting experiments made by Profs. Galtier and Nicolas, of the Lyon school, and which have been recorded lately in the *Journal of Zoötechnie*.

Bovines are refractory to glanders; they resist it; do not take it when in infected centres, and remain rebellious to contagion, and to all means of transmission. It is true that bovines are naturally refractory to glanders, but still the immunity that they enjoy is not the same with all subjects, as it is demonstrated by two experiments made recently by the authors named above.

Two cows were submitted to repeated inoculations of virus of glanders, one receiving 13 injections, 11 under the skin and 2 intravenous; the other 12 injections, 10 subcutaneous and 2 intravenous. The experiment on the first cow lasted from February to December, 1903; in the second from April, 1903, to January, 1904. In February the two animals were tested with mallein without giving any appreciable reaction. The *résumé* of the experiments was that up to the 13th injection the first cow suffered relatively less than the second; she had no abscesses, but after the last inoculation she had arthritis of several joints, and one abscess at the point of injection. The second cow has generally suffered more, she has had several

abscesses, in which the pus proved to be virulent, but she, on the contrary, was entirely free from arthritis. Both animals had dry lasting coughs; they at various times lost considerable flesh, but that only temporarily, as they recuperated their primitive condition shortly after, and finally both resisted the test of mallein.

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The recognized immunity of bovines towards glanders naturally suggests the idea of finding out what could be the properties of the serum obtained from healthy normal subjects, and of that from animals submitted to repeated inoculations of mallein or of virus of glanders. Numerous experiments were undertaken, and some gave encouraging results to the point of view of the prophylaxy or recovery from glanders. But, still, Nocard had shown that the normal serum of bovines has no preventive or curative action, that mallein is not immunizing; that a cow which had received for five months repeated injections of mallein gave a serum which had no preventive or curative action on the glanders of guinea-pigs, and that the same result is observed with the serum of the cow which has received repeated injections of bacilli of glanders killed by it.

Taking the serum of the two cows upon which the first experiment was carried out, Profs. Galtier and Nicolas undertook experiments to test the curative or preventive property of the serum. They took blood from the first cow at various epochs. With the serum obtained at the first bleeding they inoculated guinea-pigs; these had local manifestations and became glandersous when injected, subcutaneously or intraperitoneally, with virus of glanders. With serum obtained from the second bleeding, dogs were experimented upon. The result was also negative. Inoculated with glanders, on the forehead, they develop the classical affection. An old mare received 160 c.c. of both of these serums and developed acute glanders by a subcutaneous injection of virus of glanders. Another mare was then treated with the serum obtained from the blood of the second cow. From the 19th of February to the 12th of April she received 34

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injections of 20 c.c. each time. On the 20th of February she had a subcutaneous injection of virulent emulsion made from lesions taken from a glanderous guinea-pig. She developed manifestations of glanders the day following the virulent injection, manifestations which spread and increased, and finally she was destroyed, showing few lesions of farcino-glanderous affection in the lungs and on the pituitary membrane. What conclusions can be drawn from this case of a mare which, while she receives 680 c.c. of serum and lives nearly two months after subcutaneous inoculation of a very active virus? Other experiments are necessary to answer; but it must be remarked that in the two mares, although both were inoculated with the same dose of a very active virus, the result was very different. The first with 160 c.c. only dies in 7 days with the disease; the second, with 680, has resisted much longer. Is there in this fact reason for hope?

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UNIFORM VETERINARY TITLE FOR GERMANY.—Mr. N. Nieder, in the *Recueil de Médecine Vétérinaire*, has written a review, relating to a question which seems lately to occupy in Germany, not only the veterinary profession, but also official departments to such an extent that it has been the subject of important discussion in the Reichstag. Indeed, at one of the seatings of this body, Doctor Müller, one of the representatives, has asked the Imperial Government to recognize for all the superior veterinary schools of the German Empire, the right to grant the title of *Doctor of Veterinary Medicine*, a privilege which at present exists only for the University of Giessen. Dr. Hopf, Sub-Secretary of State, while being favorable to the proposition of Dr. Müller, has thought proper to reject it because it relates to a point of public instruction which belongs to the respective governments of the various States of the Confederation. The Imperial Administration, therefore, has no quality to support the measure, although it seems most rational.

According to the *Deutsche Thier. Woch.*, the motion of Dr. Müller was taken up before the Landtag of Saxony, under the

form of a presentation for a law, which, after being sent to the examination of a reporter, has been the subject of a most acute discussion before the Chamber between the Government of Saxony on one side and the reporter on the other, who was sustained by a certain number of representatives.

The principal argument upon which the reporter based his favorable decision was the concurrence which was made for the past few years to the Superior Veterinary School of Dresden by the University of Giessen, which grants the D. V. M. This concurrence being made stronger by the fact that the University of Leipzig, following the example of the Faculty of Giessen, receives also theses from veterinarians anxious to get the doctorship. It is true that the doctorship of Leipzig is only a doctorship in philosophy, conferred by the only faculty in philosophy which allows the inscription of veterinarians graduated from the superior veterinary German schools, which inscriptions allow them to follow courses of veterinary and natural sciences, especially agriculture and zoölogy. In other terms, to become doctors of the University of Leipzig, young veterinarians have only to leave the veterinary school after the 5th or 6th semester, enter for two semesters the agricultural section of the University, and present their theses, on a veterinary subject, before a commission named by the Secretary under which the direction of the University is placed.

For the moment, the government of Saxony, without being opposed to the new proposition, does not seem disposed to realize it. However, it is said that proposals are engaged between the respective governments of the various confederate states so as to grant the privilege to all the veterinary schools of Germany. It is probable that at an early date this innovation will soon be realized and that, as in Switzerland, veterinarians all over Germany will receive a uniform title, that of D. V. M.

I wonder if this reform will ever be realized in America, and if only one title will ever take the place of V. S., D. V. S., V. M. D., M. D. C., M. D. V. of to-day.

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RABIES, like other contagious diseases, is an affection which almost every day presents points of importance, heretofore unknown, but upon which investigators sooner or later come forward to throw light upon them. I have just read in the *Bulletin de la Société de Biologie* the *résumé* of a study made by MM. Courmont and Nicolas upon the virulency of the aqueous humor of rabbits dead with rabies. Up to this day this liquid, whether taken from animals affected with rabies or that had died with it, had been considered as free from virulency. The authors have experimented with all the desirable cases to avoid the contamination of the aqueous humor by the lacrymal secretion, which is known as dangerous. The humor that they obtained was inoculated in doses varying between  $\frac{3}{20}$  to  $\frac{3}{4}$  of a cubic centimetre, after trephining, into the brain of a certain number of rabbits. A first experiment, made upon five rabbits, gave positive results; they all died with rabies. The incubative stage has varied between seven and ten days, death taking place between the third and the fifteenth day. The disease ran its normal course. In one animal only it was rather slow. The brain of three rabbits gave a series of normal rabies. In three other experiments the results were negative, although the inoculated dose was superior to that used in the first; consequently, the aqueous humor of rabbits, rabid because of an intra-cerebral inoculation of virus, is rather frequently virulent. Yet, this virulency is far from being constant and in nearly half of the cases its inoculation in the brain of a normal rabbit is not followed by any accident. When it exists, this virulency is certainly due to the presence of the rabid virus itself, in the aqueous humor, and not to simple toxines, as long as the disease thus produced is transmissible in series.

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Another point, which will interest no doubt some of our friends in the West, where now and then we hear of rabies in an epizoötic (?) form, is that of the *vaccination of herbivora against rabies* which MM. Remlinger and Mustapha Effendi treat of in their short paper recently published in the *Recueil*.

In man, the technic of antirabid inoculations is known in all its details; in animals it is not the same, and the fact is that when one is in the presence of an opportunity where treatment is imposed, many difficulties have to be overcome. Vaccine matter is not easily obtained, the operation has to be delayed, etc., etc. Having a flock of 12 steers and 10 buffaloes to treat, the authors were first embarrassed: the animals had been bitten by a mad dog, and it was only five days after that they were called. The vaccine emulsion they used was made in the proportion of one brain of rabbit, killed by fixed virus, for 250 cubic centimetres of water. After filtration, each animal received one injection of 10 c.c. of that solution. The operation was easily carried out; there were no accidents following, and a few hours later the animals were sent to pasture as usual. The next day a second injection of 10 c.c. was made with a more virulent emulsion, two brains of rabbits being mixed with the 250 cubic centimetres. No accident, no complication, and the treatment was considered as ended. Everything went well up to one month after the vaccination, when steers and buffaloes began to die with rabies, some with the raving, others with the paralytic form. The deaths kept up for the two months following the immunization. After a year four steers and four buffaloes remained free from the disease. The mortality had been 63, 63 per cent. when the classical average is between 60 and 80 per cent. The operation had been negative. Perhaps the severity of the wounds, which were all around the nose, or, again, the length of time elapsed until the vaccination was undertaken, may account for the unsuccessful result.

The conclusions of the authors are that if an herbivorous animal has been bitten by a rabid animal, one must not, as it is generally done, resort only to two injections in the jugular vein, but, on the contrary, it is important to repeat the inoculations, somewhat in like manner to the treatment in man, and, of course, especially when the wounds are severe and when the treatment can be applied only 48 hours or more after the injury.

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"EPIZOÖTIC LYMPHANGITIS."—Through the kindness of MM. Williams and Norgate, of London, I have been favored with this little work written by Capt. W. A. Pullin, F. R. C. V. S., which I believe has for the first time been offered in book form in England. The recent appearance of epizoötic lymphangitis in England and the vast experience of Capt. Pullin justify the publication of the work by such an author. It forms a nice concise treatise, where the literature, the nature and the history of the disease are first considered, then the geographical distribution, the bacteriology, with the various methods of staining (and especially that of the Captain), the incubative stage, the symptoms, the lesions, etc., etc., down to the treatment (external, internal and prophylactic)—all written in a practical manner. The work is also illustrated with many photographic plates, 17 in number, mostly all taken from nature, by which the reader is readily made acquainted with the external aspect of some of the principal symptoms. The book is completed by appendix, which gives some of the various official regulations relating to the disease as it made its appearance in England, regulations which were made under the General Diseases of Animals Act in Great Britain.

It is certain that, published at this time, when epizoötic lymphangitis has been imported into England, this little book will find numerous readers, and there is no doubt that many of our friends in America will also find in it valuable information, as after all we must also recognize the fact that there is every possibility of the disease being imported into the States, if it is not there already, as it appears certain by the articles that some of our collaborators have already recorded.

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LAURENT LEOPOLD TRASBOT, honorary director of the Alfort Veterinary School, died July 17, at the age of sixty-six. During the thirty years that he was Professor of Clinic at the school, he reached gradually a high official situation, and became a member of the Academy of Medicine, of the National Society of Agriculture of France, of the Society of Biology and

of a great number of other scientific societies in France and other countries. He was Officer of the Legion d'honneur, of the Instruction Publique and of the Merite Agricole. He was an emeritus clinician, and an expert surgeon. He published a number of articles in the *Recueil de Medecine Veterinaire* and in the *Dictionnaire de Medecin et Chirurgie Veterinaire*. His own masters were Renault and Bouley. With such he could not help but make his mark in the profession. In 1891 he succeeded Nocard in the directorship of the school, and held his position up to 1899, when he retired. By his will he showed his gratitude and love for his profession: he gave 10,000 francs to the Central Association (benevolent organization); an income of 600 francs a year for the foundation of a free scholarship at Alfort; and an income of 600 francs for a prize to the Société Centrale de Médecine Vétérinaire. These gifts place him among the benefactors of the profession.

A. L.

#### SURGICAL CLINICS AT THE A. V. M. A. MEETINGS.

Apropos of the suggestion that the clinic at the A. V. M. A. be abandoned, or else be made a better example of modern veterinary surgery, the report of the clinic at St. Louis, published elsewhere in this number of the REVIEW, says the demonstrations were of a high order, full of intense interest, and well attended, concluding that they will surely be a permanent feature of the meetings. The REVIEW will ever be an advocate of these exercises, but insists that no operative procedures be undertaken or permitted save when performed with due regard for modern surgical technique. It would not be possible for any committee of surgeons to say what operations are of importance or value to the general membership of the A. V. M. A., for one surgeon may have a new and better way to do a very old and a very common operation, and time spent upon such a case might be infinitely more to the profit of those attending than would some of the classical operations that are seldom undertaken save in the college surgery. Many of those of the major class, while showing the possibilities of advanced veteri-

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nary surgery, are impracticable in routine practice, for several reasons: they require an amount of surgical skill and hospital paraphernalia and assistance that are not and can not, as a rule, be at the ready command of the busy practitioner; they require more time for recovery and more expense in fees and maintenance than the owner is willing to bestow upon them. So that the practitioner, as we know him, draws his sustenance and makes his reputation from the commoner ills and accidents of domestic animals. This being the case, is it not much better that these commoner and necessary operations be performed in the best and most approved manner? And how can he be kept in touch with the progress made in this direction better than through the intercommunication obtained at our surgical clinics? And how can the field be so broadened as through the surgeons of the continent at our annual meetings? Is it fair to say that the surgeon should have had instruction in minor surgery during his college days, when it is a daily observation that improvements upon the old methods are constantly being introduced? Such a simple matter as the introduction of setons has recently been revolutionized by the happy thought of Dr. J. E. Ryder, of New York, who gave to the profession his idea of the probe-pointed seton-needle; so, too, Dieckerhoff's substitution of the phlebotomy trocar for the time-honored fleam, the ecrazeur for the clamp, the emasculator for the ecrazeur; the stomach-tube of Phillips simplifies the abstraction of gas from the stomach, just as the cæcum trocar relieves tympanites of the large intestines. Many other instances could be cited where great advances in minor surgery have been introduced to the profession to its evident betterment. The surgeon has to be alive to the kaleidescopic advances being made; his college-day instruction will not compensate; he must be on the watch for every improvement which he can find upon the older methods. Should he, in turn, learn through experience of a better way to do any of the operations which he meets in his practice it is his duty to communicate it to his brethren either by report or demonstration. Why should such communication be re-



stricted to his county meeting when a broader field is open to him in his national association?

The classical operations which have not been proven to be practical and of utility to the body of the membership had best be reserved for the college clinic until their value and practicality have been more definitely established. How many demonstrations, for instance, have we witnessed of the various operations upon the larynx for the relief of roaring, only to be told at this late date that they are practically worthless? The nervo-muscular operation for crib-biting, shown in various clinics, is now said to be of no value in practice, and so with many of the neurectomies.

The REVIEW contends that the education of the members of the A. V. M. A. in the best methods of common surgery is of infinitely greater service to them than the difficult classical exercises which bring disappointment and loss of enthusiasm for the possibilities of modern surgery.

DR. R. A. PHILLIPS, Plaquemine, La., has undertaken to organize a veterinary medical association in Louisiana, and the REVIEW bespeaks the coöperation of the qualified men of the profession in that State. While the members of the profession are not very numerous in Louisiana, they are a progressive body of veterinarians, and have the proud distinction of having a larger per cent. of their number on the roll of the A. V. M. A. than any State in the Union. Since there is such loyalty to the national organization there should be little difficulty in bringing them together at home, for they cannot fail to have a high regard for the strength that lies in unity, and from the communion of interests and pride in their calling we confidently look forward to wise laws uplifting and safeguarding the live-stock interests as well as the profession and the public.

DR. D. ARTHUR HUGHES' graphic description of the exhibits of the Bureau of Animal Industry and the agricultural colleges at the World's Fair in this number of the REVIEW is worthy of

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the closest scrutiny by those who take pride in the great advances being made in the allied sciences of veterinary medicine and agriculture. This splendid portrayal of the exhibits is an accomplishment upon which the author should be complimented, for when we looked through the displays there was so much that engulfed our attention that to reduce it to descriptive writing seemed an impossible task; yet, after reading Dr. Hughes' facile record, it seems that he has omitted little or nothing.

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AND now we are to lose another valued State veterinarian, for it appears that Cuba has placed such an enticing position at the disposal of Dr. N. S. Mayo, of Manhattan, Kansas, that he has already accepted it and will shortly remove to that little republic to assume the duties of an office modeled after that of Chief of our own Bureau of Animal Industry. We do not consider, however, that our American profession will be other than a gainer by Prof. Mayo's transplantation, for while he will labor in another field he will broaden our knowledge of tropical pathology, and inspire a deeper respect for the educated veterinarian and modern veterinary science.

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THE surgical dexterity acquired by the American veterinary surgeon was illustrated at the St. Louis clinic in the castration of stallions in the standing position. The account of the operations performed by Dr. Geo. R. White, of Nashville, Tenn., as detailed elsewhere in the present number of the REVIEW, are truly marvellous. The emasculation of a thirteen-year-old stallion in fifteen seconds is probably excelled in swiftness only by that upon a younger horse in eight seconds by the same operator at the same meeting.

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THE NOVEMBER REVIEW will contain an original article from the pen of that well-known specialist in diseases of small animals, Frank H. Miller, D. V. S., of New York, entitled "Hæmorrhagic Colitis of the Dog, due to Infection with the

*Trichocephalus Depressiusculus* (True Whip Worm)." It will be of practical interest and value to the profession, since it deals solely with clinical facts. It will be illustrated by three beautiful micro-photographs.

LOCAL veterinary associations will resume their monthly meetings during October. August and September witnessed the most largely attended and best national and State conventions ever held, and their influence will surely be of benefit to the local organizations.

THE present month will inaugurate the resumption of teaching in the various veterinary schools of the country, and the prospects are very encouraging for full classes and increased equipment in most of the colleges.

THE MINNESOTA STATE VETERINARY MEDICAL ASSOCIATION has issued a directory of the licensed veterinary practitioners in that State. It shows that the entire number is 264, of whom 92 are graduates and 172 non-graduates. We regret to note that 10 non-graduates were licensed in 1903 and 10 in 1904, while previous to these none had been registered since 1894, except one in 1896.

DR. MAYO HAS ACCEPTED PROMINENT POSITION WITH CUBAN GOVERNMENT.—Dr. N. S. Mayo, professor of veterinary science at the college, has accepted a position with the Cuban government which corresponds to our own office of Chief of the Bureau of Animal Industry. The professor has been in Havana looking over the situation, but will arrive here to-morrow evening. His position is in connection with the experiment station at Santiago de le Vigas, twelve miles from Havana. In an interview with Mrs. Mayo this afternoon she said that the Doctor would resign his position at the college here and that he had accepted the Cuban government position, and they expect to move to Havana, Cuba, sometime in the near future. This will cause regret among the many friends of Dr. and Mrs. Mayo, especially among the club women of the city, of which Mrs. Mayo was a member, to learn that this esteemed family are soon to make their home in far away Cuba.—(*The Manhattan Republic, Manhattan, Kansas, Sept. 3.*)

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## ORIGINAL ARTICLES.

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### THE EXHIBITS OF THE BUREAU OF ANIMAL INDUSTRY AND OF THE AGRICULTURAL COLLEGES AT THE WORLD'S FAIR.

BY D. ARTHUR HUGHES, PH. D., D. V. M., CORNELL UNIVERSITY,  
GOVERNMENT INSPECTOR, EAST ST. LOUIS.

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The excellent spirit of emulation which has been dominant everywhere and in all things in the making of the Louisiana Purchase Exposition, is in evidence also in the Exhibits of the Bureau of Animal Industry and the Agricultural Colleges. On the one hand, in the National Bureau's Exhibit, one is impressed with the care taken by the Washington authorities who planned the exhibit to illustrate to the public mind by a variety of devices the kind of work done by each department of its service. Each part of the exhibit is meant to explain as simply and as strikingly as possible the purpose and the value of the several departments to the great American public. While on the other hand, in the Agricultural College Exhibit, one is impressed with the standards of excellence attained in all the branches of study pertaining to agriculture.

As veterinary science, with its branches, and agricultural science, with its branches, are cognate studies; and as the two exhibits must, in some degree, be of interest to veterinarians, I propose to give a running account of them to the end: first, that a more lively knowledge may be had by the reader of the work of the Bureau; second, that he may be a little more acquainted with the many-sidedness and value of the work of the agricultural colleges.

#### I. THE EXHIBIT OF THE BUREAU OF ANIMAL INDUSTRY.

Though the Exhibit of the Bureau embraces every feature of the Department's work, those portions which more particularly interest veterinarians are: 1, the Inspection division with its closely related quarantine service; 2, the Pathological division; 3, the Zoölogical; 4, the Bio-Chemic.

### *I. The Inspection and Quarantine Divisions.*

A general notion of the extent of the work of these divisions is first of all conveyed by means of a large wall map upon which are symbols denoting the kind of work, inspection or quarantine, or both, done at any particular station. The government inspection of meats in the great abattoirs, it is learned, covers the whole country and embraces places as remote from one another as New York, St. Paul, Monterey (Cal.) and San Antonio and Fort Worth, Texas. While the colored quarantine line drawn left to right across the map shows the Texas fever region and the quarantine stations where guardianship is set up against the incursion of the disease northward. An impression of the magnitude of the work having been given, an endeavor is made, by a series of artful devices, to inform the popular mind of the details of the work. By means of these devices the visitor is taken into the confidence, as it were, of each division and subdivision and instructed in its workings and usefulness.

#### *(a) The microscopical inspection of pork for trichina spiralis.*

Immediately at the entrance of the exhibit area sit several ladies, expert microscopists of the inspection service, who demonstrate, practically, with the microscope to the visitor, the presence of trichinæ in pork taken from a local official abattoir. The visitor sees the infested pork, specimens of it prepared for the microscopical stage. Finally he sees a cross-section of the pork under the microscope.

#### *(b) The tagging, labelling and stamping methods employed by the government.*

There are exhibited in cases, models of carcasses showing the place and proper manner of affixing government labels, after carcasses or their parts have been passed as wholesome by the inspectors. In a case are to be seen the various labels, stamps, tags, certificates, brands, seals, seal-pressers; besides the instruments and other materials used in examination for trichinosis—sample cases, boxes and compressors. All these are actually in use by government inspectors to designate what is condemn-



ed in the abattoir or what is passed as wholesome. To read about these different means of disposing of meats or passing them for food as prescribed in the government regulations is one thing; but to see at St. Louis the materials used and have them explained by the official, is quite another matter. Seeing, in this case, is understanding.

(c) *Sea-board inspection of live cattle for export.*

This is explained by means of a model of a sea-port stock yard containing miniature men and animals. The whole arrangement of puppets in the model illustrates the means by which the work is accomplished. We see in the model the pens in which the cattle are placed, the narrow passage through which they are driven to be inspected and metal-tagged in the ear if passed for export; or turned aside if rejected.

(d) *Government regulations for steamers carrying export cattle.*

A model is exhibited which gives a cross-section of a cattle carrying steamer. This conveys to the mind of the visitor the meaning of the regulations prescribed by the government for vessels in export cattle trade. Government inspectors have charge of the work of tagging, loading and shipping, in so far as United States sanitary law prescribes regulations for ventilation, head-room, tie-ups of sea-going animals.

(e) *Cattle-dipping regulation.*

A cattle-dipping chute is shown in a model in order to illustrate the government's provision for the stamping out of cattle scabies.

Dr. Rutherford, Inspector-General for Canada, said at the American Veterinary Medical Association in St. Louis, that in Western Canada a section of the country a hundred miles square was infested with cattle scabies, and that he and the Canadian inspectors were on the way West to suppress it. Similarly, a corps of United States government inspectors is at work attempting to suppress scabies in the Northwest by isolation and dipping methods as exhibited in the model.

(f) *Sheep-dipping regulations.*

The government's method of combating scabies in sheep is

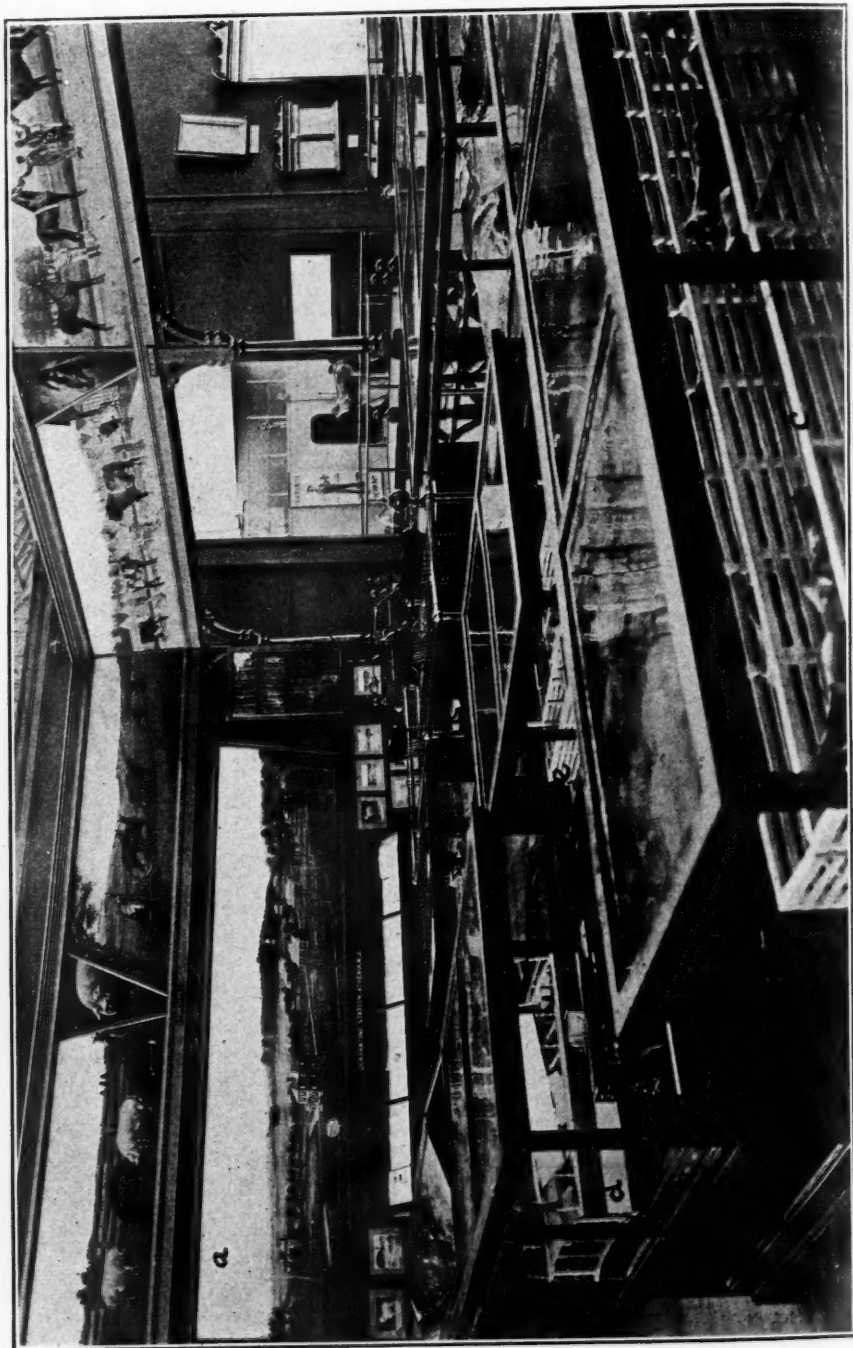


FIG. 1.—(a) PAINTING, ATHENIA STATION MODEL—(b) BEEF CARCASSES, SHOWING LABELING AFTER INSPECTION—(c) CATTLE DIPPING MODEL—(d) CROSS SECTION STEAMSHIP SHOWING FITTINGS—(e) MODEL STOCK YARDS FOR TAGGING EXPORT ANIMALS.

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depicted by means of models of a sheep-dipping plant, of sheep affected by scabies and by models of the mite itself. The visitor can see the circular corral, the subdivision of the sheep into small lots, the passage of the sheep into the sulphur-nicotine vat, their emergence to the drying board after a five-minutes immersion. The models of sheep show the destructiveness to the wool; while the models of the mite disclose the appearance of the parasite. All this work of dipping, it need hardly be said, is under the direct supervision of government inspectors, the result of which has been, to the Northwest, a great diminution of losses from scabies.

(g) *Scheme to unfold graphically the extent of the work of the Bureau.*

On the wall of the exhibit is hung a large map of the United States, made expressly under Dr. Salmon's direction. There is designated on the map: 1, the meat inspection stations throughout the United States; 2, the points where dipping of sheep and cattle is done under government supervision before animals are allowed to pass into foreign or interstate trade; 3, quarantine stations on the coast where all animals to be exported or imported are rigorously examined by government inspectors; 4, the quarantine line bounding the district infected with Texas fever; 5, the stations along the quarantine line where animals to be shipped northward are watched and reported.

By far the larger part of the export and import trade in live animals is done through the port of New York. Consequently a rigid inspection must be made of such animals and quarantine established to prevent importation of diseases from Europe. The Bureau in its exhibit shows a large wall painting of the quarantine station for the port of New York at Athenia, N. J. This contains twenty-four isolating stables. The station is so situated that in case of an importation of a disease it can be stamped out there immediately.

Furthermore, by means of a picture machine, panoramic views are had of: 1, of killing on an abattoir floor under government inspection; 2, inspection for trichinæ; 3, tagging

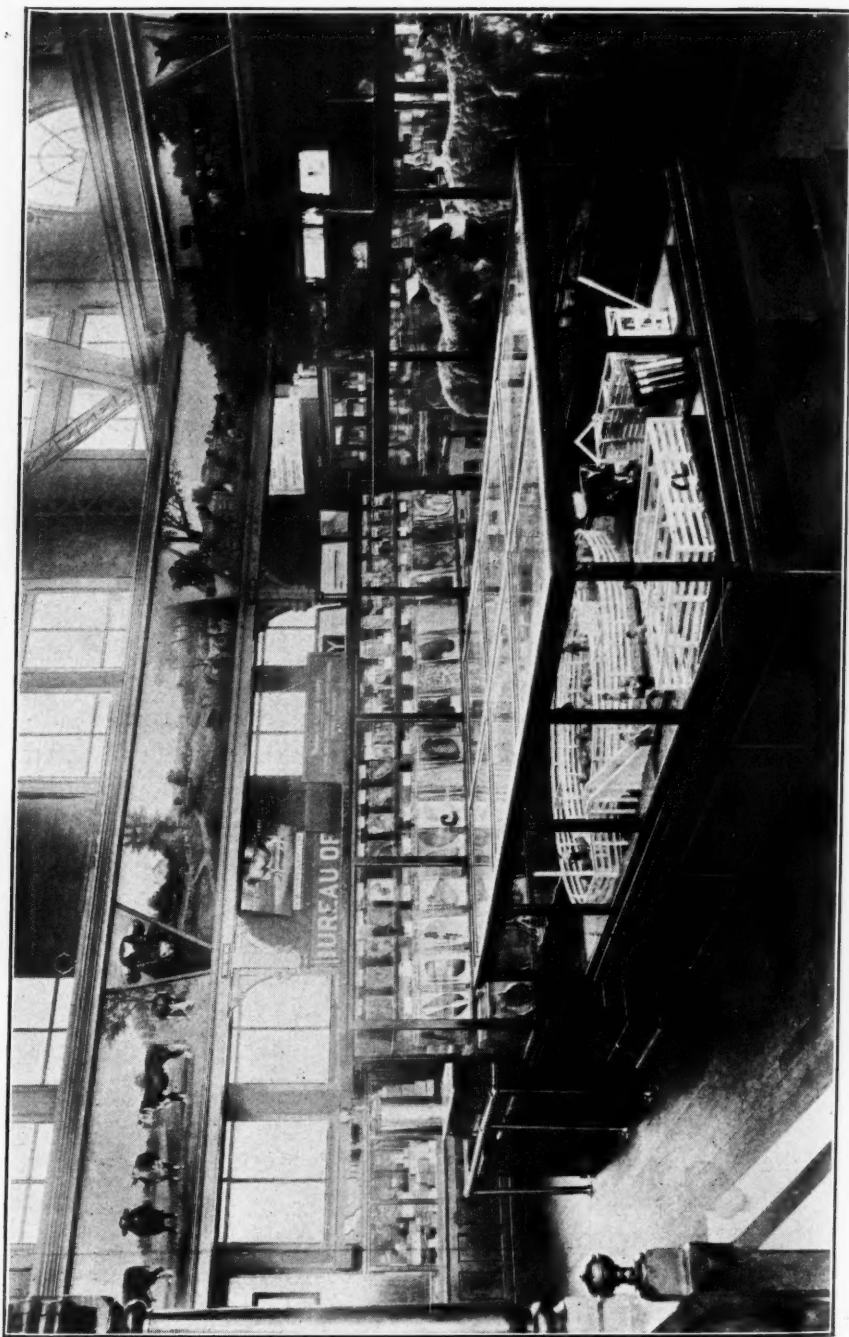


FIG. II.—(a) SHEEP-DIPPING MODEL—(b) SCABIES SHEEP—(c) CASE WITH PATHOLOGICAL SPECIMENS.

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cattle for export ; 4, cattle deck as prescribed by Federal law ; 5, horse deck on shipboard as required by Federal law ; 6, cattle in position ready for voyage—and so on—the panorama exhibiting graphically the provisions of the government in the case of export animals.

Enough has been said to prove that the central authorities at Washington, in their wisdom, have done everything to give an exposition to the people of the scope and usefulness of the Inspection and Quarantine Service to the animal industry of the nation at large.

2. *The Exhibit of the Pathological Division.*

In preparation of the Pathological Exhibit the idea has been present, not so much to illustrate the merely curious or unusual diseases : rather, to show specimens of common diseases particularly destructive to animal life, already present amongst us ; or those, even more to be dreaded, which have not yet made an incursion.

(a) *Plaster models.*

Thus plaster models are on exhibition shaped and colored to illustrate the lesions of rinderpest—hæmorrhagic lesions on the mucous membrane of the mouth, tongue, larynx, nasal septum, skin, stomach, intestines. Wax models of normal liver and spleen of bovines, and a liver and spleen affected as a result of Texas fever, are seen—the contrast between the two sets of organs brings out strikingly the changes occurring in the disease. A plaster model is also shown to illustrate the method of vaccinating calves against black-leg, as prescribed by the authorities at Washington, together with sealed tubes showing the stages in the process of preparation of the vaccine made in the government laboratories.

(b) *Transparencies ; preparations in preservative fluids illustrating common diseases.*

About sixty transparent photographs of tissues and organs are shown to illustrate lesions of hog cholera, actinomycosis, Texas fever and tuberculosis, together with magnifications of parasites and pathogenic microorganisms. About eighty speci-





mens of tissues and organs are to be seen, representing diseases found by government inspectors at the abattoirs. Besides, specimens of diseased conditions produced experimentally, are shown—representing results of the studies of the Pathological Division in the questions of intercommunicability of disease. Chief among these are specimens proving the communicability of human tuberculosis to animals. The lungs of calf, cat and sheep shown in the specimens are in the advanced stages of a tuberculosis which was obtained experimentally from an inoculation of material from human origin.

(c) *Illustration in water colors ; bacteriological tubes ; laboratory fittings.*

About twenty illustrations in water color are to be seen depicting conditions as they are found in the microscopical pictures of disease. Forty tubes present the characteristic growth of pathogenic microbes on various media. All the modern laboratory fittings used in bacteriological investigation are in evidence at the exhibit.

### 3. *Exhibit of the Bio-Chemic Division.*

Part of the most useful work of the laboratories at Washington is the preparation of bacteridian products for immunization, immunizing experiments, diagnosis. Perhaps more useful for the future are the studies carried on there on new bacterial products, serums, toxins and antitoxins. The Bio-Chemic Division's Exhibit consists of tuberculins, anti-tubercle serums, mallein ; toxin and antitoxin of tetanus ; hog cholera toxin and serum ; anti-diphtheritic serum ; black-leg vaccine.

### 4. *The Exhibit of the Zoölogical Division.*

In the preparation of the Zoölogical Exhibit three ideas were prominent :

1. To show a particular parasite which causes a well-known disease and the parasites similar to it with which it is often confounded ;
- 2, to show some of the chief parasites causing diseases in the domesticated animals ;
- 3, to show parasites which have domesticated animals as their intermediate host, but which in their last stage are dangerous to man. Thus, to illustrate the first kind, the Texas fever tick is placed beside

five other varieties of Ixodoidea which it resembles. To illustrate the second kind, twenty-eight varieties of tape-worm and twenty varieties of round worms are shown. To illustrate the third class, the cystic form of beef and pork measles are shown. All these, and many more, comprise the Zoölogical Exhibit.

As we have now encompassed, in this racy account, the Bureau Exhibit, the functions of this great organ of the Department of Agriculture must be more apparent. In its exhibit the Bureau has endeavored to place before the public its utility for the animal health and the public wealth. Some of its functions are: to have inspected all animals passing into the noted abattoirs in the great packing centres, that the public health may be guarded and that higher values may be placed upon meats and animal by-products; to guard in its quarantine service against the propagation and dissemination of diseases already, unfortunately, present in this country, and to prevent importation of still worse diseases amongst animals; to investigate diseases in its laboratories to the end that they may be controlled or stamped out; to study the live questions of immunization, and to manufacture microbial products which are immunizing; to study parasitisms which infest farm animals and take away life and animal values; in a word, to help the public in a practical manner and to enlighten the public mind on all questions which will lead to higher standards among animals and in animal products from which greater wealth will ensue.

## II. THE EXHIBIT OF THE AGRICULTURAL COLLEGES.

We are sometimes given to forgetting, in our zeal for our own particular specialties in medicine and surgery, that our progress in a community depends not alone upon our own particular standards and ideals, but upon the degree of enlightenment which the community has in the varied lines of agricultural thought and agricultural knowledge. We consequently must welcome every increase of knowledge in agricultural science for our own science is closely related to it. The agricultural scientist is our confrère. It is the enlightened

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agriculturist who feels the potency of an enlightened veterinarian.

We may make bold then, in this article, to racily speak of the Agricultural Exhibit at the World's Fair :

1. *Exhibit of the Bureau of Education.*

Near the central office of the Agricultural College Exhibit in the "Palace of Education" is situated the Exhibit of the Bureau of Education, which represents the relation of this Bureau to the Agricultural Colleges and Experiment Stations throughout the United States. "The contribution of the Bureau of Education includes a set of publications issued by that Bureau, a set of the catalogues of all the colleges of Agriculture and Mechanic Arts, various publications and illustrations furnished by those institutions, and statistical charts." The aim of the exhibit is to show the nature and scope of instruction offered by the Agricultural Colleges, the equipment for instruction in science, the roll of professors, instructors and students. When one remembers that the American system of agricultural education is endowed by the Federal government, that 10,705,600 acres of land constitute the endowment of the land-grant colleges, that there has been a rapid increase in number of students, that a desire for knowledge in all the multitude of specialties relating to agriculture, including veterinary medicine, has been quickened by this form of education, the thought is borne in upon us that here in agricultural education is an ally to veterinary progress.

2. *Exhibit of the Office of Experiment Stations.*

This exhibit also embraces sets of publications of experiment station workers, "bound sets of the publications of the office and of the experiment stations and about 200 text-books, manuals and text-books written or edited by experiment station men." Most, if not all, of the experiment stations have experiment station veterinarians. Even desultory dips into these volumes will convince a man that the veterinarian in such a position as that of an experiment station worker, though his office may not be always an enviable one, has opportunities for



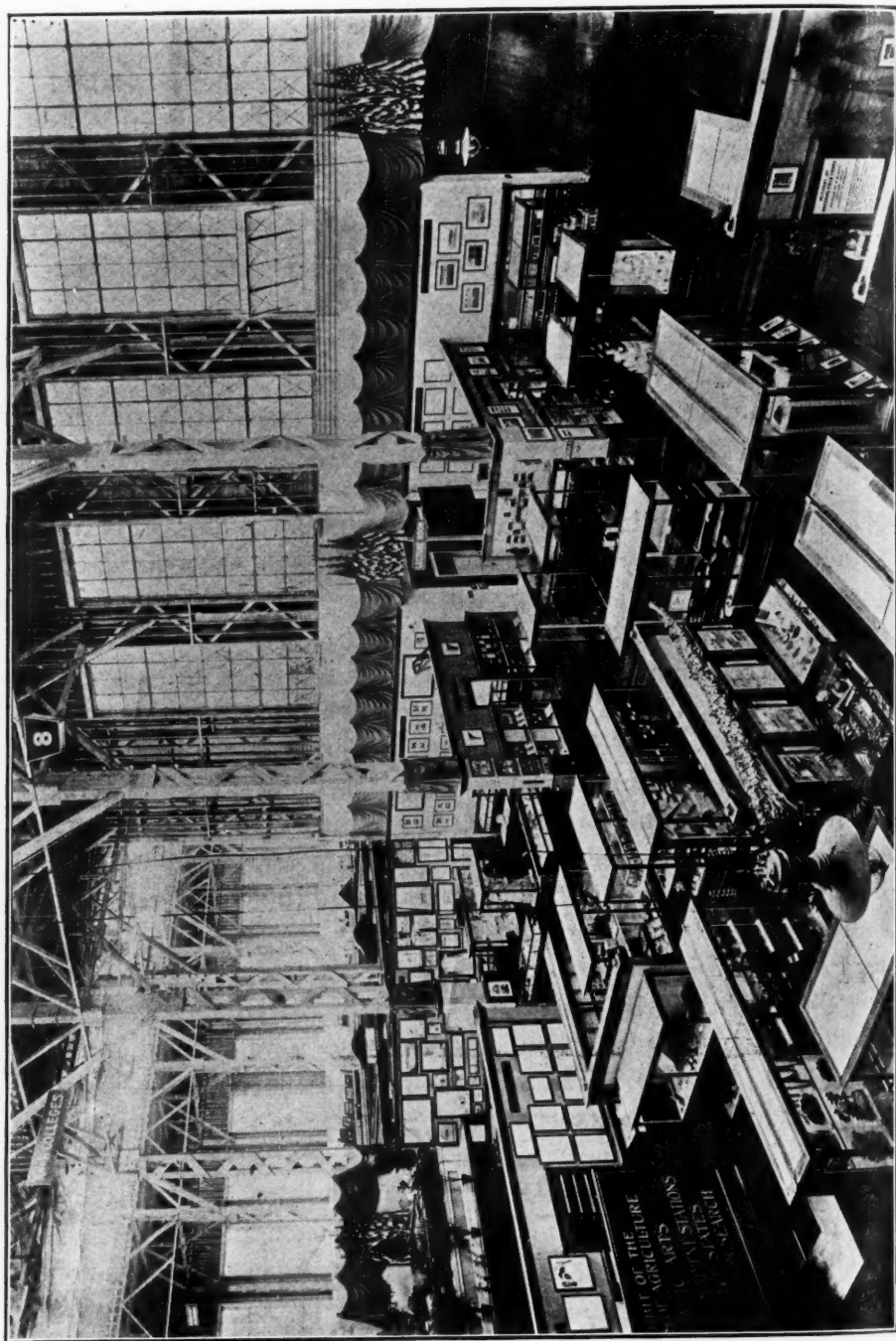


FIG. V.—AGRICULTURAL COLLEGE EXHIBIT—GENERAL VIEW.

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investigation and exploitation in the pathology of infectious diseases in a state which none other has. When a man learns that over 12,000,000 copies of bulletins, circulars and other publications are issued annually by the agricultural experiment stations in the United States and by the United States Department of Agriculture, he can see that the experiment station veterinarian has, in this channel alone, a means of circulating information upon his investigations which is unexcelled.

3. *Agricultural Exhibits Proper.*

These embrace: 1, Plant production; 2, Zoötechny or Animal Industry; 3, Agricultural Technology; 4, Rural Engineering; 5, Rural Economics. The exhibits on plant production include questions of the plant laboratory, soils analyses, composition of fertilizers, production of field crops, horticulture and forestry, plant pathology and entomology. Agricultural technology includes the matters of dairy products and dairy productiveness and the sugars obtained from sugar-cane, maple and sorghum. Rural engineering includes questions of irrigation and drainage, while rural economics treats of farm management. All these studies are illustrated by an almost bewildering array of charts, machines, implements, analysed products, or highly cultivated products, which will bear a visit and will convince a man of the smallness of his knowledge, while at the same time it broadens the mind upon the significance of these studies in their relation to his profession and to the ideals in agricultural science.

Nevertheless the booths devoted to animal industry or zoötechny are highly interesting to the veterinarian. For here we find the results of the studies of the experts in animal industry in the agricultural colleges—apparatus used in the analysis of feed-stuffs, in studies on the questions of metabolism and laws of nutrition and the results of scientific feeding experiments tried by these experts. A single booth is set apart for exhibition of the improved instruments, implements and apparatus used in instruction in judging stock in most of the agricultural colleges.

FIG. V.—AGRICULTURAL COLLEGE EXHIBIT—GENERAL VIEW.

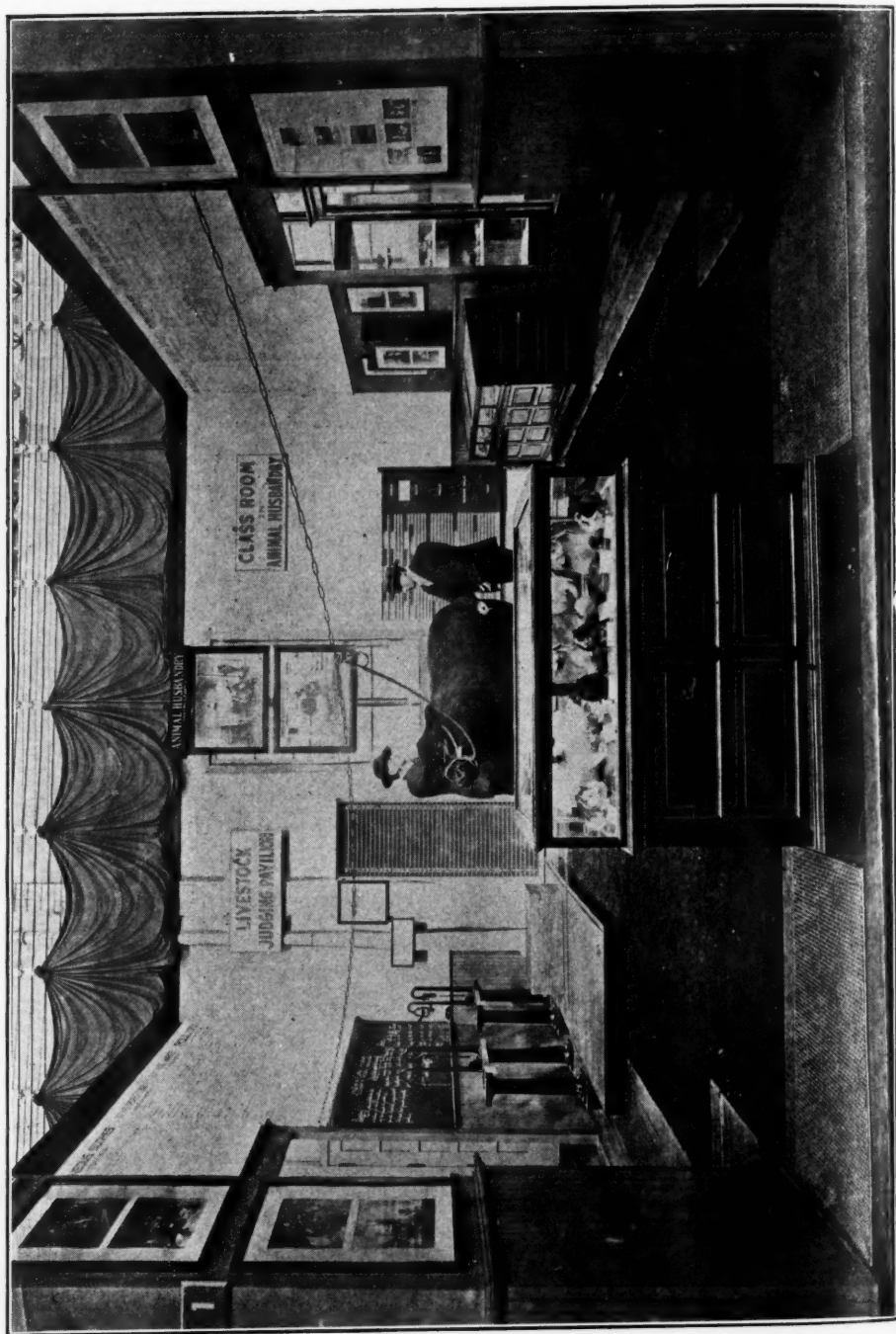


FIG. VI.—AGRICULTURAL COLLEGE EXHIBIT—ANIMAL INDUSTRY.

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Last of all there is a section exemplifying the study of veterinary medicine in these colleges, in which may be seen dry specimens of bone and hoof diseases, charts and skeletons to teach the anatomy of the horse, and specimens in preservative fluids to illustrate the common neoplasms and the pathology of infectious diseases.

\* \* \*

The veterinarian interested in subjects which make for his increase in professional knowledge and in the betterment of the profession, whose mind is open to new things in the science, who wishes to see what the national government is doing, not only for the good of the masses of the people in the practical matters of animal quarantine and inspection, but in the gravest questions of infections as they can be studied in the laboratory, who wishes to more distinctly appreciate the co-relation of Agriculture and Veterinary Medicine—such an one can do no better than to spend, not a rushing minute or two, but quiet hours, visiting the Exhibits of the Bureau of Animal Industry at the Government Building and the Exhibit of the Agricultural Colleges at the Palace of Education. If he fears that he may go away more confused than enlightened, let him be comforted with the thought that men are ready with an unfailing courtesy to help him out of his confusion. In Mr. James L. Farmer, Chief Agent for the Government in the Agricultural College Exhibit, he will find a gentleman ready to free him from difficulties. In Dr. J. Wm. Fink, who has charge of the Bureau Exhibit, the Washington authorities have found a man whose courtliness makes him an excellent representative of a National Bureau at a National Exposition. Speaking for myself, I must say that to both I am under obligations. To the one for supplying me with pamphlets and photographs; to the other for furnishing me notes on the contents of the exhibit he has in charge. He who visits the Bureau Exhibit cannot miss the impression of its value, nor can he but be affected by the enthusiasm of the man whom the government has sent to St. Louis to represent it.

## AZOTURIA.

BY RICHARD PRICE, V. S., ST. PAUL, MINN.

Read before the Annual Meeting of the Minnesota State Veterinary Medical Association,  
August, 1904.

Consideration is asked for any disconnections that may appear in carrying out arguments or statements throughout this paper. But as you are all active and busy practitioners and realize that in the preparation of this paper many hours, days, months and even years of study, observation and hard work are represented, and that in the writing of it many months have been occupied at diverse moments snatched from a busy life, often when the writer is more fit for a good rest than for the hard work, to us, of scratching words on paper after racking our tired brains for the material. Even then too often the telephone or some other rest-disturber summons us to a colic or parturition case, which if not attended to promptly may lose us a patient, or a client, as well as a fee. Consequently our much beloved paper (I believe we all like to add our quôta to scientific knowledge) has to go over until—well—the next opportunity, favorable or otherwise, for the work.

The glandular organs have certain functions to perform, which, when properly carried on, maintain the body in a state of health. Under abnormal conditions the action of these glands is interfered with, primarily by either congestion or anæmia, which, if continued long enough, produce diseased conditions of the glands themselves and consequently perverted action. The liver being one of the most important glands, through whose bloodvessels and cells every drop of blood has to pass thousands of times daily to be acted upon, its effete matters metamorphosed into suitable form for excretion, and to furnish material for the production of the natural liver secretions; when diseased conditions arise, its functions are interfered with, the body suffers from the effete materials accumulating in the blood, and the liver itself, from lack of proper nourishment as well as the accumulation of these waste substances.



"In extensive disease of the liver, especially of rapid occurrence, ammonia salts are found to largely replace urea in the urine, such salts taking the form of lactates and of carbonates." (Schäfer.) The secretion of bile being greatest when proteids are fed and lowest when carbohydrates constitute the sole diet, a sudden increase of the bile excreted in herbivorous animals is most likely due to the over-supply of metabolic nitrogenous organic substances from various sources, such as the muscular system, those stored in liver, those existing in the interstices of the muscular system (the circulating proteids), and those existing in the bowels from the food. These are thrown rapidly into the blood in excessive amounts, probably as ammonia salts combined with sarcolactic acid, and the antecedents of bile acids from the muscular system, which being carried to the liver are converted into the necessary substances for excretion, such as urea, and other biliary secretions and excretions.

In azoturia excessive amounts of metabolised proteid materials are thrown suddenly from the above-named sources into the general circulation, where they had accumulated in extraordinary amounts during the three or four days of rest (without any exercise), that usually precedes these attacks. The secretory organs of nutrition having carried on their functions preparatory for the daily stage of labor, which being omitted for those few days, causes an excessive accumulation of "tissue fuel"; as an engine would generate an excess of steam were the same amount of coal consumed during the period of rest as during a similar period of "running." Lack of exercise causes the excretory organs to become sluggish from want of the stimulus of exercise, which allows a surplus of nitrogenous material to accumulate in the system. Most of these waste materials have to pass the gate or portal organ to escape from the system, where they undergo the necessary metamorphosis prior to excretion from the body. The liver being considered the principal gate-keeper has most of the work to perform, although the skin and other excretory organs can and do assist in ridding the system of noxious material during periods of unusual vascular



activity and congestion, even if not presented in a properly prepared form for their selection.

These waste materials from tissue metamorphosis are further augmented by the circulating proteids, and by those from the digestive organs, which, being all carried suddenly to the liver and other excretory glands in unusual amounts, overtax them by their excess. These glands becoming flooded, pass much of the materials through, without the usual metabolic transformations.

The paralytic phenomena appear first in the muscles undergoing the greatest amount of exertion, hence of metabolic changes. These muscles are generally the glutei, vasti or rectus femoris of one or both limbs, although I have seen the caput muscles affected in a few cases. These swell up, becoming as "hard as a board" to the touch, and apparently painful, due partly to the pressure produced on the nerve terminals, but principally to the development of sarcolactic acid and other products of tissue metamorphosis; similar to those causing the sense of fatigue, only much more intensified. The excessive waste material not being carried off rapidly enough by the kidneys, skin and other emunctories remains in the general circulation, accumulating in excessive quantities as long as muscular exertion continues. Hammarsten says: "Violent movements of the body easily cause dyspnœa, and this by producing a diminution of the oxygen supply increases the proteid metabolism, and thus increases the elimination of nitrogen." These waste substances resulting from tissue change consist of ammonia, sarcolactic acid and other antecedents of the bile salts, and it is to these that the phenomena witnessed in azoturia are due. There is a great increase in the amount of nitrogenous products in the urine, uric acid, urea, hippuric acid, albumose, urates and bile, hæmoglobin (from the action of the bile causing dissolution of the blood corpuscles), paralysis of a group or groups of muscles, and in severe cases nervous symptoms of brain involvement.

In mild cases the affected muscles recover after a varying period. If, owing to the severity of the attack, recovery be pro-

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tracted, the affected muscles become atrophied ; due most likely to the coagulation of their albuminous constituents, necessitating absorption of this destroyed muscle substance and its replacement by fresh proteid material.

During the first stage of the attack, the effort of the cutaneous circulation to aid in the excretion of these effete products is evident from the excessive perspiration (the sweat of a horse normally contains proteids), which in warm weather, no doubt, may prove sufficient for this purpose in many. But the majority of cases of azoturia are met with during the cold chilly season ; cold is incentive to muscular metabolism and increases the trouble ; cold also causes a contraction of the sudorific apparatus ; the blood with which the cutaneous vessels are filled is driven suddenly inwards and further congests the already overloaded circulation with material, not only excessive and effete, but an actual poison to the system generally, the effects of which may be witnessed on autopsy of those horses which die after an attack : the muscular structures affected are disintegrated, the heart, liver, spleen, kidneys and other glandular organs throughout the body are congested and even friable from destructive changes. The red blood corpuscles are disintegrated, the serum is of a reddish tint from the coloring matter of the dissolved red blood corpuscles. The blood contains a great excess of albumen, ammonia salts, urea, bile and other products of tissue metamorphosis. These destructive changes are characteristic of the action of the bile acids or their precursors when existing in excessive amounts in the system. It has been asked me "Why do we not have discoloration of the mucous membranes?" The reason is that the action of the liver being in abeyance, owing to congestion, the pigments of the bile are not produced in sufficient amounts ; furthermore, if they were their appearance would not be noted until some days after the primary seizure. "*Cessation of the function of the liver cannot well cause jaundice, but cessation of excretion of bile by the usual processes of oxidation, etc., may cause jaundice by the excessive accumulation of bile pigments in the circulation (after 3 or 4*

days), the bile pigments being reabsorbed from the small intestines, and not undergoing the usual metamorphosis and elimination from the body." (Flint.)

In azoturia, the blood surcharged with waste material (that is, material which cannot be utilized in the immediate nourishment of the body, the latter having already reached the point of repletion, or nitrogenous equilibrium), and carrying it to the liver as well as other excretory organs to undergo the necessary metamorphosis preparatory to excretion from the body, floods these organs, washing out in unusual amounts their secretions and excretions; the blood pressure being increased and the normal pressure equilibrium being disturbed; the result is an unusual accumulation of bile in the blood, which with the sarcolactic acid, ammonia salts, and other products of eliminated tissue elements, produces a general congestion, most, however, at the point of greatest metamorphosis, which would be those muscles undergoing the largest amount of exercise, where the accumulation of these products produce chemical changes causing the phenomena witnessed. The most active agent in producing these chemic changes probably are the bile acids, as by their introduction into a healthy animal, symptoms similar in nearly every respect are produced.

To prove it chemically by examination of the muscles from a horse affected with the disease, entails a most complicated and difficult analytical process, which can only be accomplished by some competent organic chemist with the proper laboratory at his disposal, as well as the *necessary undisturbed time* in which to carry out the investigation. So I will leave the suggestion to some more competent man than myself to carry out in detail.

That I am right I conclude from the artificial production of the symptoms in other animals. That I am entirely right in naming the substance that produces the symptoms is arrived at only by deduction.

However, I believe the ground to be new and heretofore uninvestigated along these lines, beyond the experiments conducted during the middle of the last century in ascertaining the

action of the bile when introduced into frogs, rabbits and dogs. The solvent action of bile on the blood corpuscles, the destructive effect on the various glandular organs, its slowing action on the heart, and its effect on body temperature, and on serous membranes, the production of hæmoglobin in the urine, and the increase in nitrogen were ascertained. These investigators were Feltz and Ritter, Röhrig, Hoppe Seyler, Frerichs, Kühne, Graham Brown, Leyden, T. von Dusch, Johannes Ranke, Kemarsky, Traube, J. Steiner, Luciani, Charcat, Koloman Müller, Magendi, Bouisson, Goupil and others, and quoted by J. W. Legg, who also verified many of these experiments.

During a period of *fasting* the urea is not excreted until from 12 to 48 hours *after exercise*, though proteid katobolism is immediately increased. Hence some of the experiments carried out in regard to the proteid metabolism that goes on in the body during *active* muscular exercise and estimated by the amount of urea passed must necessarily have been erroneous *unless* the calculations are based on the amount of urea passed up to and during the 48 hours following the exercise. Experiments have been made on dogs. When a dog is *fed* proteid diet the N. is eliminated 33 per cent. in the first 2 hours and about 50 per cent. during the first 6 hours. In fact, the increase in elimination of urea is almost immediate and increases to the maximum in about 6 hours. The inference from this is clearly that the increased excretion of urea is due principally to the metabolism of *only the digested and absorbed proteids of the food*. Uric acid has been prepared synthetically from urea and glycocol.

The administration of ammonia salts increases the excretion of urea and uric acid.

Lactic acid and ammonia are primarily formed in the muscles, the secondary changes to urea and uric acid occur in the liver principally, but in some cases in the spleen.

The metabolism of tissue proteids themselves may yield the precursors of hippuric acid. Hammarsten states that the special organs for the synthesis of hippuric acid are the muscles

and liver. Schäfer states the kidneys, but as the experiments were carried out on dogs, this would be true, as Håmmarsten says that these organs in dogs synthesize hippuric acid, but the liver does so in other animals. There is so little new on the theory of where the urine is formed and where excreted, that I may be justified in referring to the teachings of Galen's time, 1650 years ago, which was that the products of the urine were formed in the liver and separated by the kidneys. Feeding glycol increases the amount of urea in the urine; in fact, it leaves the body as urea.

Sarcosylactic acid is not normally found in the urine, but appears where there is either a suspension of the hepatic functions or *interference with the oxidation process*, due to muscular activity either severe or prolonged, the oxidations not keeping pace with the production of lactates in the muscles.

"The bile acids must be derived from some nitrogenous bodies; it is therefore probable that they come from the albuminous compounds of the system, though whether through the breaking down of the tissues or the splitting up of the peptones from the food is not known."

"The surplus proteids of diet is largely broken down into ammonia compounds in the wall of the intestines and these compounds pass to the liver."

"Of late years, even physiological chemists have succeeded in detecting both pigments and acids in the urine in health, a sure sign that they must be present in the blood, as it would not be assumed that the kidneys were able to secrete them." (Legg.)

Analyses made for me by N. Lehnen, Ph. D., of urine from a horse affected with azoturia, showed a great increase in the bile, uric and hippuric acids, albuminose, phosphates, coloring matter, and a decrease in creatinin, and, contrary to the generally accepted idea, a great decrease in urea. This was as compared with an analysis of urine from a healthy horse.

The solids were in the diseased horse's urine 220.675 per 1000, as against 106.140 per 1000 in the healthy urine; being more than double.



The reaction of the urine in another case was sour at the commencement of the attack, and contained blood, bile and albumen, becoming gradually less acid in reaction up to the twelfth hour, when it gave a neutral test, and alkaline reactions on and after the sixtieth hour up to the ninety-seventh, the blood, bile and albumen also gradually disappeared, until only traces were found on the ninety-seventh hour, and the tests ceased.

There can be no doubt but that a difference will be found in nearly every case, no two being exactly alike. Therefore, tests of the urine should be of material assistance to the practitioner in guiding him as to the proper treatment to adopt in each case. Unfortunately, the tests of the urine and of the blood for bile acids, or their salts, as well as those for lactic acid, and other pathological products in these fluids, are most complicated and difficult. It is a good deal like giving a man who knows nothing about painting the necessary paints, brushes and canvas, etc., then telling him how to paint the picture and letting him go ahead. The result can be imagined better than described. I do not mean to throw discredit on the members of our profession, but we must all admit that such tests, requiring many hours and even days of careful and constant application (during which complications may arise that are only to be considered within the domain of the *most expert* organic chemists to combat successfully,) are not possible for the active practitioner to make. A general test, however, for certain substances can be hastily made, and I hope in a later paper to be able to give more fully the results of investigations I am still carrying out regarding this disease, with a description of the handiest tests for the practitioner.

Legg says: "*Failure of physiological chemistry to detect bodies in no way warrants the assertion of their absence in a fluid.*" When certain organs become overworked, or when for any cause they cannot perform their natural functions, other organs attempt to relieve them.

I have consulted the works of these well-known and recog-

nized authorities on physiology and organic chemistry, Kirk, Hammarsten, Schäfer and others, concerning the natural processes that occur in a healthy body under normal conditions. There are many points, such as the formation of the bile acids, cholesterol, lactic and uric acids, which may undoubtedly under abnormal conditions be secreted and formed in an abnormal manner, and in organs and tissues which usually do not perform these functions, it being an endeavor on their part to maintain the systemic equilibrium necessary to prevent disease or death. This may be done in an imperfect manner, and an effete substance produced in another form, one not usual for the *excretory* organs to *eliminate*. The lungs, kidneys, skin, bowels, liver, spleen, etc., are contingent to a great extent one on the other, and can, to a limited extent, vicariously assume the functions of the others. For this reason substances can be found by expert organic chemists that do not usually appear in the urine. Many old theories have to be thrown aside, and their arguments carefully sifted. Over twenty years ago I read a paper before our Veterinary Medical Association in Minneapolis, in which I gave the urinalysis of these cases of azoturia referred to in a previous part of this paper, and noted the unusual appearance of bile. Reference in it was made to a controversy between Professors Williams and Axe in the old country. The former attributed the disease to "An excess of urea in the urine, which is itself due to a hyper-nitrogenous condition of the blood and system generally."

Prof. Axe contended this theory on the ground that urea does not exist to any abnormal amount in the urine in these cases. He proposed to call the disease acute convulsive hæmaturia. There are many errors however, in his tests.

Prof. Walley found hæmaturia, and also excess of urea and biliary matters, and proposes to give the name azotæmia or even toxæmia. He evidently considered the disease an acute uræmia.

None of these substances, however, produce any of the symptoms of azoturia when injected into the economy, with the

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exception of the bile salts, and of these the glycocholic and taurocholic are the active ones. They are found in the blood as glycocholate and taurocholate of soda. Experiments conducted by Hünefeld many years ago, showed that the bile dissolved the red blood corpuscles; other investigators found this to be true. The leucocytes are also destroyed. Leyden observed parenchymatous degeneration of the glands and muscles following subcutaneous injections. Ranke found the muscles *to swell up and become as hard as wood* after intramuscular injections. Legg repeated these experiments and coincided with Ranke. Intravenous injections of ox bile filtered, or of the bile acids in solution, have a slowing action on the heart.

After the injection of bile acid salts into the blood *the urine quickly becomes high-colored from the presence of hæmoglobin.* (Frerichs.)

Graham Brown found in nearly every case a great rise in the amount of nitrogen excreted by the urine immediately after the injection of the bile acid salts under the skin; in one case the amount passed in the first 24 hours after the injection was just double the average of the three foregoing days. Feltz and Ritter made two observations with taurocholate of soda in dogs and found *a decrease in the amount of urea but an increase in the uric acid.* The urine in most cases seems to be alkaline.

These experiments are quoted from Legg's work on the bile. He further gives the following experiments with cholalic acid, which is also one of the active derivatives of the bile.

T. von Dusch found that cholalate of soda dissolved the red blood corpuscles.

Hoppe Seyler intravenously administered the same salt and found coloring matter from the blood and albumen in the urine. The kidneys were quite black and the tubules filled with blood crystals.

In regard to urea and oxalates, the injection of these substances into the body of an animal has never produced symptoms in any way similar to those witnessed in azoturia.

## A RAPID METHOD FOR THE DIAGNOSIS OF RABIES.

BY VERANUS A. MOORE AND CASSIUS WAY, NEW YORK STATE VETERINARY COLLEGE, ITHACA, N. Y.

Read before the 14th Annual Meeting of the N. Y. State V. M. Society, at Brooklyn, Sept. 13-15, 1904.

For the past few years the subject of a rapid diagnosis of rabies has received the attention of a large number of pathologists and bacteriologists. The sanitary importance of the disease; the fact that its cause is as yet not definitely settled; that a large number of animals, principally dogs, are going mad, thus endangering the life of domesticated animals and mankind; has led to a great deal of thorough and extended research on this subject. A rapid diagnosis of rabies, therefore, is a matter of much importance to the physician and the patient as well as to the general public.

Up to the present time, or at most within the last two or three years, the only sure means of diagnosis has been by the inoculation of experimental animals, more often rabbits, a practice oftentimes impossible to carry out with any degree of certainty on account of the decomposition of the material to be used. Even under the most favorable circumstances, from two to six weeks are necessary by this method to make a positive diagnosis. This time is sufficient for those who chanced to have been bitten by the rabid dog to develop and succumb to the disease. As well stated by Babés, it would seem "that this disease so clearly characterized by a train of symptoms, constant in their character, ought also to present characteristic lesions in the nervous centres and especially in the ganglia of the nerves which preside over these symptoms." With this as a hypothesis, a number of students have worked along this line, their object being not only to disclose if possible the cause of the affection, but also to find a method of diagnosis more rapid and more certain than any yet known.

Among those who have worked on rabies, the most prominent and most successful have been Pasteur, Babés, Van Ge-

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huchten and Nelis, Ravenel and Negri. Pasteur introduced and perfected the diagnosis of rabies by animal inoculations. Babés described certain changes, principally vascular, in the central nervous system. These changes consist of a proliferation of small round cells about and within the capsules of the nerve cells, together with certain changes within the nerve cell itself consisting of vacuolation and alterations in the chromatin of the nucleus. In addition to this he found what he accepts as constant and positive lesions in the medulla oblongata consisting of a collection of round embryonic cells about the central canal and especially about the large modified cells of the motor centres of the bulb and cord, for which he proposed the name "rabid tubercle." His results have naturally led him to trust this diagnosis and he still holds it to be one of the best means for a rapid diagnosis of this disease. About 1898 Van Gehuchten and Nelis discovered in the spinal ganglia of rabid patients certain lesions which they considered as diagnostic. In 1901, Ravenel and McCarthy confirmed the findings of Van Gehuchten and Nelis, and in 1903 Negri published an article in which he states that he has discovered the cause of this disease in a protozoon which is found within the nerve cell and which constantly appears in the nervous system of rabid animals. A score of other investigators have published the results of their researches on this subject, but a review of this voluminous literature is not germane to the purpose of this paper.

The present status of the knowledge of the morbid anatomy of rabies together with the demand for a method for the rapid diagnosis of this disease has led us to bring before this society the results of a series of investigations that we have made during the present year. Of the various methods that have been proposed for differentiating rabies the one suggested by Van Gehuchten and Nelis and later confirmed by Ravenel, Vallee and a few others seemed to be the easiest and most trustworthy. Van Gehuchten found certain changes in the nerve cells of the plexiform ganglion which could be determined by a careful histological examination. The objection to accepting this



method has been the difficulty (that has been) experienced in finding the changes in the ganglion cells which are said to be characteristic of the disease. Our purpose has been twofold. Firstly, to identify the lesions in the ganglia, and, secondly, to simplify and perfect the method so that the most definite and characteristic results may be obtained; and we believe our findings are of sufficient interest and importance to warrant their presentation at this time. Our reason for this is, that during the last four months we have received a number of heads of dogs that had died of rabies from the numerous outbreaks that have occurred in this State and in every instance we have been able to make the diagnosis which was later confirmed by animal inoculation. We believe that the lesions in the ganglion cells are usually well-marked and that the difficulties that have been experienced in the various laboratories in the use of this method as a rapid diagnosis are attributable to the technique.

In our work we have found the plexiform ganglion, which is situated just outside of the cranial cavity near the foramen lacerum basis cranii, on the pneumogastric nerve, the most convenient and the most desirable for study. The removal of this ganglion is comparatively easy and simple.

There are two ways by which this ganglion can be easily found. Firstly, take up the pneumogastric nerve and trace it anteriorly to the point where it enters the cranium. Near this point a slight enlargement, the ganglion of the trunk of the vagus, will be found. Secondly, cut through the skin from the mandibular symphysis posteriorly along the neck and reflect it back. An incision is then made through the mylohyoid muscle near the inner face of the mandible posteriorly past the digastric muscle and superiorly until the lingual nerve coming from the tongue is exposed. Trace this posteriorly until the point where it enters the cranium together with the vagus is reached. In this way it is easy to locate the vagus nerve and the plexiform ganglion. We have found either one of these methods or a combination of the two very convenient, and with a knowledge of the location of these parts there is no reason

why the ganglion should not be removed quickly and easily.

After the ganglion is removed there are a variety of methods which may be used in fixation and staining. However, as we do not wish at this time to deal with laboratory technique, we will simply give a summary of the method which has proven most efficient both in time and fixation. As soon as the ganglion is removed it is placed in Flemming's fluid for a few hours, washed in water, carried through the alcohols and sectioned by the paraffin method. With this method of fixation it is almost imperative that the sections be stained with iron or Delafield's hematoxylin, of which we have found the latter the most convenient. Alcohol, either 95 per cent. or absolute, may be used as a fixer, in which case other staining methods may be used. However, the fixation by this method is not as good.

Normally this ganglion is composed of a fibrous capsule from which a supporting fibrous tissue extends into the interior, holding in its meshes the nerve cells, each of which is enclosed in an endothelial capsule. The changes characteristic of rabies consist in the atrophy, the invasion and the destruction of the ganglion cell as a result of new formed cells, evidently from the endothelial capsule. These cells appear first between the nerve cell and its capsule. These changes are quite uniform through the entire ganglion and in advanced cases of the disease nearly all of the nerve cells are oftentimes destroyed.

While in this preliminary paper we wish simply to state our verification of Van Gehuchten's findings and confirm the possibility of making a rapid diagnosis of the disease, we are constrained to make a few suggestions in the handling of rabid animals which the use of this method demands. From what has been said, it is evident that this method can only be used by those familiar with laboratory technique and who have the facilities for such work. In this respect it differs from animal inoculation, which can be made by any practitioner. The importance, however, of knowing that a dog that has bitten animals or people has rabies, is sufficient to overcome the objec-

tions to the method and to warrant the extra trouble of sending the material to some laboratory.

It has been clearly pointed out by Negri as well as Van Gehuchten, that in order to find the characteristic lesions it is necessary that the disease in the infected animal should run its natural course. While the *agens morbi* is present and may be transmitted to experimental animals by inoculation by using the brain of rabid animals that are killed several days before the disease would naturally terminate, the morbid changes in the nervous tissue are not in evidence until very near the end of the disease. This essential feature requires that where the diagnosis is to be made from the anatomical changes it is obligatory that the disease shall be allowed to run its natural course. For this reason the quite general habit of killing suspected animals, thus destroying the possibility of making a rapid diagnosis, should be replaced by capturing the animals and keeping them in safe quarantine until they die. It must be understood that the method here described is for the rapid diagnosis of the disease, and not a method for its early diagnosis.

In our experience we have found that the simplest and safest method of sending suspected rabid material to the laboratory is to cut off the head and neck close to the shoulder, pack it in a pail of ice and send by the first express.

In conclusion we would state that in our opinion Babés' method is less practical than that of Van Gehuchten. We are at present endeavoring to verify Negri's findings concerning the etiology of rabies, and it is possible that in the near future his discoveries may lead to still better methods for a rapid and a positive diagnosis of this disease.

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DR. WILLIAM C. RAYEN, Nashville, Tenn., has disposed of his practice and will make his future home in Southern California. Dr. Rayen has resided in Nashville for the past fifteen years and enjoys the highest esteem and confidence of the people of that city. Dr. Rayen held the position of State Veterinarian for a number of years and has occupied a number of State and Government positions.

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**OBSTETRICS.**

BY M. S. WHITCOMB, M. D. C., AUSTIN, MINN.

Read before the Annual Meeting of the Minnesota State Veterinary Medical Association,  
August, 1904.

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This branch of the veterinary profession is of great importance to the practitioner who has a country practice. This branch of veterinary science, from all economical standpoints, is of great importance. The value of nearly all the domesticated animals, and the necessity of their multiplication to supply the demands of a widely extended and rapidly progressive civilization, renders everything connected with their reproduction of the greatest importance. To assist creatures in the pangs of protracted labor, to prevent or shorten suffering, and in all probability to preserve life during this physiological act, is no less a duty than it should be a source of satisfaction to the veterinarian.

In all the cases of difficult parturition, and most of them that we are called to attend are difficult, the operator is expected to deliver the mother at any cost of labor, exposure, risk of infection, etc.

As a rule, there can be benefit only where the veterinary surgeon is called and is present in good time. Called upon too late, after the fluids have all escaped for a long period, and the neighboring empiric has exhausted his science, aggravated a bad presentation, irritated the genital organs by manipulations, tractions and violent means, then all the ability of the experienced practitioner may be of no avail. He will find the passages dry and swollen, the foetus more or less advanced into the pelvic cavity, wedged so tight that the hand can scarcely be passed into the uterus, which is very closely contracted on to the foetus. How is it possible to manipulate in such a place, how change the vicious position, which the greatest effort cannot make advance or retract? How can a sharp instrument be carried into the uterine cavity, and used with safety, when the hand alone can with difficulty be made to enter it? It is under these cir-

cumstances that a practical knowledge of obstetrics, and a good amount of physical strength is most valuable, and renders him who possesses them a great acquisition in an agricultural district. In the animal-rearing localities is to be found the school in which the practitioner may be initiated into all the difficulties of this complex art, which is attended with many inconveniences and hardships.

When the floor, on which the animal stands, inclines toward the head it is most favorable for an exploration, as the intestines are thrown forward, somewhat away from the uterus.

The practitioner is not called to attend many cases of natural, or spontaneous parturition. It is dystokia and generally after the case has been tampered with, and much harm done, that the veterinarian is called in to operate. The most common presentations in dystokia are: front feet with head misplaced, or one foot and the head, the other leg being misplaced, head presentation, tail presentation and all four feet presented. The most difficult of these, I think, is the last.

I will recite a few cases that have been quite difficult ones for me.

Was called May 30, 1902, to take a foetus from a mare that had been laboring all night, arriving there about 9 A. M., nearly twelve hours from the time the mare showed signs of labor. Owner informed me when I started to prepare for the job that a neighbor of his had tried and failed. I found the patient quite easy in a standing position and eating hay some of the time. On examination, found the front feet presented and head misplaced, turned down into the most dependent part of the uterus, and so far forward that it was impossible to reach any part of it. I knew by this time that if I had any success with the job I must change the position of the foetus. I first straightened out the front legs, and as far as possible bringing them into view, about twelve inches, and tied them firmly together in two places, one below and the other above the fetlock joints; then passed a lever between the legs, between the places where they were tied together. After placing the repeller against the colts'



sternum, had an attendant turn the lever, while with the repeller I slightly forced the foetus back from the passage. We were soon making some headway and in this manner soon had the head where I could reach it, and turn it back into the passage, which I did without the aid of a hook. The head now being in position, the foetus was easily removed, and the job was completed in a short time without injury to the mare.

Was called to the farm of Mr. H., April 18, 1903, to deliver a mare which the owner and a neighbor had tried to operate on, but had failed. I arrived about nine hours after labor had commenced. I found on examination that all four feet were presented, the front ones somewhat in advance of the hind ones. The head was within easy reach. I found that I could not retract the hind feet enough to take the foetus away head first, so decided to try and get the other end started first. The front legs being in the way, I disjoined them at the knee, and after securing the hind feet with some cotton rope, I had the helpers try to start that end, while with the repeller I pushed the front end somewhat forward, and soon the hind end came into the passage and was easily taken away without injury to the mother. In such presentations as this it is almost always impossible to deliver the head first, as the long hind legs are continually catching, and preventing any progress, and do much injury if much force is used. In all similar cases, I try to take the foetus by the hind legs, and deliver that end first.

Extra-uterine pregnancy is occasionally met with, which is a serious condition, and is very confusing.

In studying the development and progress of the ovum after its escape from the ovary, and impregnation by the spermatozoa of the male, we find that a peculiar arrangement exists in the presence of the fringed border at the extremity of the fallopian tube, which grasps the ovum and permits it to be conveyed into the canal on its way to the uterus. From certain causes which are not yet clearly understood, it sometimes chances that the ovum, instead of taking its natural course, remains in the ovary, is arrested in its progress through the tube, or escaping

the fimbriated extremity of the latter, falls into the peritoneal cavity or glides between the folds of peritoneum constituting the broad ligament, or between the serous and mucous membranes of the uterus. In all of these abnormal conditions, nature makes an effort to afford space and nutrition for the embryo, and thus supplies the place of the uterus. This effort, as might be anticipated, is only partially successful, and after attaining a development that is more or less imperfect, the foetus perishes from lack of nourishment. These deviations, according to most writers, are rare. I have met with two such cases in my practice and can say that they are not very nice to get into. They both terminated fatally. In one of these, on which I held a post-mortem, I found that the foetus had been formed in the abdominal cavity, not being connected with the uterus in the least.

The most frequent sequelæ to parturition in the mare are parturient laminitis and metritis, in the cow parturient paresis, all of which are quite serious conditions.

I have found that large doses of potassium nitrate three or four times a day, laxatives and laxative diet, and in severe cases poultices to the feet, are very beneficial in parturient laminitis.

**DAN PATCH'S ILLNESS.**—Last week the unwelcome news was received from Topeka that the champion pacing stallion Dan Patch was desperately sick and had little or no chance to recover. Veterinarians were summoned from the Kansas capital and a skilful practitioner was wired for from Kansas City. Later a New York veterinarian who had previously treated Dan during the time Mr. Messner owned him was also sent for and took train for the West as soon as possible. In the meantime the local surgeons had diagnosed the case as one of ruptured stomach, according to popular report, but later it was thought that a twisted or telescoped intestine was to blame for the intense pain suffered by the horse. As may readily be supposed nothing was left undone to promote his comfort or his ultimate recovery and later accounts are that he has improved. Being a good business man Mr. Savage has Dan insured in Lloyds of London for \$50,000 and in the event of death would not be such a heavy loser from a financial point of view.—(*Breeder's Gazette*, Sept. 25.)

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REPORTS OF CASES.

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*"Careful observation makes a skillful practitioner, but his skill dies with him. By recording his observations, he adds to the knowledge of his profession, and assists by his facts in building up the solid edifice of pathological science."*

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## AN INTERESTING CASE THAT DID NOT DIE.

By GERALD E. GRIFFIN, D. V. S., Vet. Art'y Corps, U. S. Army,  
Fort Sheridan, Ill.

Healthy bay gelding, nine years, 1100 lbs., draught animal. Tied on picket line close to a post. Worked as usual in morning, ate and drank as usual.

1st.—P. M. of this date reported with "lump" on middle of neck; the examination revealed slight swelling to left of trachea and about midway between larynx and point of shoulder. Bite? Local treatment.

2d.—Swelling enlarged, hot and painful, animal refusing all food. No diagnosis. Local treatment.

3d.—Swelling involves middle third of neck, animal holding same stiffly, refused all food. Temperature 104, respirations hurried and irregular, pulse 65. Swelling hard and very prominent on left of middle third of neck. What's the matter? No diagnosis. Incision, escape of foetid gas, followed by foul smelling pus, mixed with imperfectly masticated food. Rupture of oesophagus surely? Incision enlarged, wound of oesophagus  $1\frac{3}{4}$  inches long, irregular in outline; trachea crushed, three rings involved, looks like a tin pipe caved in; enlarged previous incision, incised trachea superiorly, straightened out rings with hand; mistake to have made incision superiorly; should have made it inferiorly; didn't think sufficiently; not too late yet; expect case to die anyway. Incised inferiorly, plugged crushed part with gauze, inserted tube below, cleaned, disinfected and wrapped with gauze. Patient refuses food, introduced one gallon milk, package of oatmeal, six eggs and two gallons of water through wound in oesophagus by means of rectal syringe; shall I suture oesophagus? No, had bad results before where this was done; clean and pack with gauze. What do the books say?

4th.—Temperature, respirations and pulse same as yesterday; refuses all food. Large painful swelling in region of larynx. What now? Incision revealed collection of pus, foetid; must have drainage; cavity at bottom of original incision; contains much pus, seemingly burrowing; made an incision lower third

of neck opposite point of shoulder and connected all three incisions by means of gauze seton. Fed animal again through wound in œsophagus; loosing flesh rapidly; everyone thinks he is going to die; me too. Use weak bichloride solution on wound.

5th.—Temperature 102, respirations more regular, pulse 50, feel encouraged. Patient attempts to drink; cannot get water into stomach; pours out through wound for 17 minutes; introduce food as before; no sign of granulation; slough forming in original incisions and wounds looking dirty, except lower one; good drainage. Trachea doing well; no lung nor bronchial symptoms. After cleaning, patient evidences a desire for more water; furnished same; hold wounded œsophagus in forceps; water passes into stomach with little leakage. Pack wound, no food offered.

6th.—Temperature, respirations and pulse practically normal; a desire for food; eats two pounds of hay and two of oats approximately; difficulty in region of wound; drinks, water leaks through wound in stream; on unpacking large quantity of food in all wounds except superior, especially oats; hay better as a food in these cases, passes downward in ball, prevents constriction; so say the books; believe they are right for once. Hold wound of œsophagus in forceps and give water; little leakage thus; granulations appearing; slough of original incisions coming away; things look cheerful; a grand case. Will he pull through? An unlimited supply of hay allowed at night, none during day, but plenty of water.

7th to 18th.—Trachea doing nicely, no trouble here; removed tube on 11th; œsophagus granulating slowly; animal very thin and weak. What about feeding per rectum? Think not necessary. Wrapped œsophagus with thin rubber sheet on 13th; less escape of food since.

19th to 28th.—Everything granulating nicely. Tracheal rings a little misshapen, but firm and strong; removed gauze wrapping on 16th. Œsophagus still leaking, but granulating slowly; patient picking up.

31st.—Everything looks favorable; trachea all right, slightly disfigured, but no difficulty in breathing; œsophageal leak about size of lead pencil.

32d to 40th.—Conditions improving. More pus than there should be. Where does it come from? Exploration reveals deep-seated abscess behind œsophagus in median incision; empty same.

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41st to 49th.—Everything lovely; pus disappeared; all wounds closing rapidly; cannot see œsophageal wound, but only a few drops of water leak out now; no food.

50th.—No leak this date; animal in good shape.

51st to 59th.—Little attention necessary; only a few drops of pus from inferior opening; superior and middle incisions closed; patient eating oats, bran, etc., since the 53d day.

62d.—Exercised animal to-day, walk, trot and gallop; no unfavorable symptoms noted.

63d.—Sent for light duty; a few drops of pus from inferior opening.

67th.—All wounds closed, animal returned to place in team.

73d.—Animal doing well; no further attention necessary. During treatment all kinds of antiseptics used—carbolic, creolin, bichloride, boracic acid, iodoform, alcohol, etc.

What was cause of crushing and rupture? Who knows? One man said he saw another horse have this one by throat; doubt it; no marks observed. Another said the stable wagon jammed animal between post and wheel; all bosh! a kick might have crushed the trachea, but how account for the rupture in œsophagus?

Theory is that animal was kicked and trachea fractured in first place, a pressure upon œsophagus, choke and rupture. This theory will scarcely hold water, however.

We could describe many other interesting cases, but somehow the most interesting ones die. They appear to have a habit of doing this.

#### MERCURIAL POISONING OF CATTLE.

By JOHN P. TURNER, V. M. D., Washington, D. C.

Recently there occurred in my practice three cases which presented such atypical symptoms that I deem it worthy to report the same.

The animals were cows which had recently aborted within a short time of each other, and from which I very carefully removed the placenta after injecting the vagina daily with a  $\frac{1}{1000}$  bichloride of mercury solution for three days. My practice in these cases has been to give daily vaginal douches for one week, then three times a week for the following two weeks and subsequently once a week until a fortnight before the cow is bred. Owing to the large number of cattle affected with contagious abortion in this herd and the quantity of bichloride used in this treatment, I obtained a barrel in which was



kept  $\frac{1}{500}$  solution of this antiseptic. Instructions were always given the farmer to dilute this stock solution with equal parts of water, and for over a year this treatment has been used on this farm in a struggle to eliminate abortion from the herd.

About one week after starting the usual treatment in these three cows, they suddenly showed symptoms of pyrexia, together with increased respiration and a sharp distressing cough suggestive of bronchitis. After a febrile period of two to three days an eruption of pustules occurred in the vagina, on the lips of the vulva, on the perineum, part way down the escutcheon, and in one of the cases the eruption occurred on the tail. These pustules were noticed on other parts of the body, particularly along the spine and about the lower jaw and neck. Irritation of the intestine soon developed, which was noticed by the foetid diarrhoea. The fever continued for five days, during which the animals showed an aversion to food, but the cough continued for two weeks. An examination of the mouth and pharynx revealed no abnormal condition and salivation was at no time present. My first impression was that these cows were affected with mercurial poisoning, but the fact that no cases had occurred before this time, with presumably the same treatment, and to the further fact of the very high temperature, the racking cough, absence of salivation and also erosions in the mouth made it seem desirable to have a consultation. I therefore requested Dr. John R. Mohler, of the Bureau of Animal Industry, to examine these cows with me, and our conclusion was that the animals were suffering with mercurial poisoning as a result of the absorption of the vaginal douch by the raw surfaces consequent on the lacerations associated with removing the placenta.

The animals were given appropriate treatment locally and internally, and in three weeks they had fully recovered, with the milk secretion fairly well established. In view of the deleterious results following the vaginal injection of these three cows without any such effects in previous injections it seems probable that the stock solution had been inadvertently injected without diluting as instructed, although it was impossible to confirm this supposition. However, the occurrence will cause me to substitute other antiseptics in the future treatment of contagious abortion. This report is presented primarily on account of the rather unusual combination of symptoms noted in the affected cows, and also as a warning against the indiscriminate use of bichloride of mercury in cattle practice, espe-

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#### A PUPPY AND A HAT-PIN.

By H. S. RICHARDS, V. S., Pittsburg, Pa.

On July 7th, 1904, Mrs. E. Utly, of Shady Ave., this city, sent her butler to my office with her fox terrier pup, seven weeks old, and told me he had a chicken bone in his throat. I took him out of the basket to examine him, and could feel something in the right side of the neck, with the point about an inch from the ear; it was under the skin, and posterior to the point it was also deep in the muscles. I told him it was not in the throat, whatever it was, for it was up on the side of the neck, and not near the course of the œsophagus, and could not be anything he had swallowed. After considerable examination I could feel that it extended down between the two first ribs. As it was situated it felt as thick as a lead pencil. Finally, on turning him over, I felt something pushing the skin out on the left side back in the flank. This made me look, and also to think. When I pushed on the prominence in the flank the point in the neck would move, and *vice versa*. When I moved him or the point in the neck, he would growl and try to bite. Then I remembered an article I had seen in the REVIEW, of a veterinarian in Chicago finding a meat skewer in a dog's stomach, and I supposed that was what I had to deal with. I made a small opening in the skin in the neck and pushed on the lump in the flank, and to my surprise the object which protruded was of steel. Then I took a pair of forceps and pulled, and when it was out about six inches it stopped. Then I found out that it was caught some distance down the neck, but deeper than the skin. I pulled it up as far as I could and pushed the skin down and made a small hole in the œsophagus and forced out the head of a hat pin,  $7\frac{3}{8}$  inches long. This only left a very small hole in the skin, and the one in the œsophagus retracted, as the pin had gone down head first and the point had gone down almost to the opening into the chest, and then came out into the muscles of the neck and stopped back of the right ear. I found out afterwards that the pin had been left on the kitchen floor by the plumber, who had used it to clean out the holes in a gas-burner of the range. I put one stitch in the skin and ordered liquid food for a few days, and he made a fine recovery.

## EXTRACTS FROM EXCHANGES.

## ITALIAN REVIEW.

By Prof. A. LIAUTARD, M. D., V. M.

A REMARKABLE CASE OF FŒTAL DISTOKIA DUE TO AN ENORMOUS CONDITION OF ANASARCA OF THE FŒTUS [*Dr. Zamboni Gaetano*].—A cow due to deliver 42 days before, was one morning taken with labor. A practitioner was called, but, finding the case rather difficult, and being unable to extract the fœtus, he advised the call of a regular veterinarian. The author came, and, after exploring the genital cavities, and finding a breech presentation with the hind legs and tail presenting, he secured a rope on them and directed seven men who were there to pull. All the efforts resulted in the extraction of half of the fœtus, from the diaphragm back. With the mass the ribs, heart and lungs were torn away, but all other attempts to remove or to turn the fœtus were unsuccessful. The owner was told to sell the cow, but he could not, and later in the day other attempts were again made to deliver her, but always with no better results. The author then gave it up and went home. The next morning, however, he called again to make a post-mortem, as he expected to find the animal dead. She was living and in comparatively comfortable condition. There remained in her but the head of the fœtus and an enormous mass. These were finally secured with rope and hook, and during the violent efforts made to extract them, something gave away and some 60 litres of fluid escaped. The remaining mass then came out, the same quantity of fluid followed, mixed with bands of soft tissue. A solution of creolin was used to clean the parts, and recovery was complete. Shortly after, the cow was in heat, she was covered, and is at present pregnant.—(*Clinica Veterin., April, 1904.*)

A DOUBLE ATTACK OF LOCKJAW [*G. F.*].—A 14-year-old horse was affected with lockjaw on December 1, 1902, presenting all the symptoms of an acute attack, with likely rapid termination. Treated with rectal injections of chloral and ether, kept in darkness and with two subcutaneous injections of antitetanic serum, one of 20, the other of 30 cubic centimetres, the animal on Dec. 5 manifested marked improvement, and in a few days the symptoms were gradually subsiding. The horse resumed work on Jan. 15, and for eight months did well, when

he picked up a nail in the street, and suddenly all the symptoms of tetanus were apparent and as marked as in the first attack. A similar treatment was prescribed and followed by recovery. A second attack of such disease followed with recovery deserves to be recorded.—(*Giornale d'Ippologia, April, 1904.*)

A CALF HEIFER WITH SIX LEGS [*Dr. Umberto De Mia*].—During the month of Sept., 1903, the author heard of the rumor that a calf heifer was in town. With some the legs were situated three on each side. The truth was that there were two supplementary legs attached on the top of the withers. Born of a native cow and bull, the heifer was well built and developed for her age—she was about three weeks old. The spinous processes of the vertebræ that form the withers were only rudimentary, developed in such a way that the scapula of both sides extended for two fingers above them. The hairs on the skin of that portion were rough and bent forward in the opposite direction to those of the back. The legs were hind extremities, a little smaller than the natural ones, especially the left, and were constituted of the shank, hock, pastern and feet. They were hanging one on each side, and could be placed in any position. They were attached to the withers by a flat bone, irregular, longer than wide, which permitted all kinds of motion. The left supplementary leg had a supplementary metatarsal, scarcely developed, a reduced pastern, only one claw. The right had only one claw also, imperfectly developed. The heifer was kept for nine months, during which the supplementary legs developed but very little. She became sick and was slaughtered. (*Il Nuovo Ercolani, April 15, 1904.*)

HYDROMETRA IN A COW SIMULATING PREGNANCY [*Dr. Ricciarelli Vittorio*].—The author believes that all cases of value ought to be recorded, and especially those where errors of diagnosis are made. This case is one of that nature, the error being made by him and another *confrère* called in consultation. He was called to see a cow in the best condition of nutrition, primipara, and said to be pregnant for six months and a half. The attendant reported that since she was last covered, the abdomen had gradually enlarged, and that at times she was throwing out from the vulva a large quantity of yellow filamentous matter. The vulva looked like approaching delivery, the vaginal mucous membrane was rosy and covered with yellow liquid that the animal threw out with expulsive efforts. By vaginal and rectal examinations, the uterus was felt dilated, but no foetal movements detected. The case seemed peculiar,



and another veterinarian, who made a careful examination, pronounced the heifer pregnant, with a dead calf in her. It was then decided to wait and see what nature would do. Well, it was not long to wait, for after a few hours, probably as the result of the many manipulations to which the animal had been submitted, she expelled an enormous quantity of liquid, partly creamy and partly fluid, straw colored and entirely inodorous. The uterus once completely emptied, the abdomen reduced in size and in due time the cow was again covered and became pregnant.—(*Il Nuovo Ercolani*, April 15, 1904.)

A CASE OF ABNORMAL RETENTION OF THE FŒTUS IN A COW [*Dr. Agostini Umbesto*].—A cow, eleven years old, was pregnant. From time to time she had been examined, and from all information and her condition she was considered as being pregnant since Sept. 8, 1902. Regular examinations were made of the animal, her condition and that of the calf being carefully watched, and it was decided to wait for nature to act rather than to interfere with her, directions being given that the attendant be called as soon as indications of labor were present. Time passed and nothing came until Nov. 21, 1903 (14 months and 13 days from the time the cow was covered). On that day she was taken with violent pains, the envelopes protruded through the vulva in an enormous mass. Punctured with a bistoury, about 150 litres of fluid, yellow and odorless, escaped. The hand introduced in the uterus felt the living fœtus, enormous in size, to such an extent that embryotomy had to be performed. The operation was long and difficult. But after four hours of work the entire calf had been removed. All the pieces collected weighed 98 kilograms. The hairs were 10 centimetres long, the teeth well developed. There was only one eye in the middle of the forehead, the lower jaw was seven centimetres longer than the upper. The calf was in perfect condition, no putrefaction, the meat had a normal aspect, and from the umbilical cord liquid blood was escaping. The cow died on the fifth day after the operation.—(*La Clinica Veter.*, April, 1904.)

LACERATION OF THE VAGINA DURING COIT—PROTRUSION OF THE INTESTINE—RECOVERY [*Dr. T. Guerrieri*].—A handsome filly of three years, immediately after being covered, had a slight hæmorrhage from the vulva, and about two metres of the small intestine protruded. Evidently the injury had taken place during the act. The mare was in pain and making violent expulsive efforts, which had to be controlled before reduction could be attempted. An injection of morphine gave the good



result, and the intestines, dirty and soiled with fæces, were returned after being thoroughly cleansed with sterilized water. Once the intestines returned, proper examination of the vagina could be made; it revealed a laceration beginning about five centimetres from the vulva and running on the floor of the vagina for 15 or 20 centimetres in length and then branching off transversely, thus making an opening through which the whole hand could enter the pelvic cavity. Having no speculum, the examination could not be very minute. For treatment, the author, being unable to insert sutures, attempted to bring the edges of the wound together with a kind of safety pin, but after applying two he found it impossible to go further with that mode of treatment. He then decided to place the animal in a narrow stall, with the floor raised behind, so as to have her stand higher on the hind than the fore legs. Low diet, general quietness, and now and then morphine injections to keep her quiet. The recovery went on well, and left only a hard irregular cord as cicatrization of the vaginal laceration.—(*Il Nuovo Ercolani*, May and June, 1904.)

A CASE OF BUCCAL ATRESIA IN A CALF [*Dr. R. P. Rossi*].—After a few considerations upon this congenital malformation, the author records a case which he attended. He was called to see the calf a few moments after birth, and he found it without a mouth, the complete congenital occlusion being due to the union of the two lips, having between them a thin rosy membrane. The little fellow, born at term, presenting no other malformation, the maxillary bones being well developed and their borders well felt and distinct, it was decided to operate at once. The calf was secured, the parts disinfected as well as possible, and an incision made through half the membrane which united the lips. A little hæmorrhage followed, accompanied with abundant escape of saliva. The parts were washed and the borders of the lips cauterized with the nitrate of silver. But the opening which was left between the lips by the incision was too small, and the calf was unable to take hold of the teat and suck its mother. It was necessary to enlarge the mouth by a prolongation of the incision, right and left. The profuse hæmorrhage which followed had to be stopped with perchloride of iron, as forceps did not answer. The animal, however, was quite weak after this long operation, and its lips being sore, it became necessary to feed him artificially. This had to be done for three days before the condition of the lips allowed the little fellow to take the teat. When 40 days old

he was sold and weighed then 70 kilograms. During the three years previous to the birth of this calf, the mother had in succession deformed products.—(*Clinica Vet.*, May 7, 1904.)

### FRENCH REVIEW.

By Prof. A. LIAUTARD, M. D., V. M.

PECULIARITIES OBSERVED DURING CASTRATIONS OF A FOX AND OF A CAT [*E. Michelin*].—*First Observation*.—A gentleman was the owner of a fox, which had been captured when very young. The animal was well tamed and living on very good terms with a dog of the house, but he had the bad habit of running away on frolics, and it was decided to castrate him, to make him more steady at home. The operation was performed on the right side, not without difficulty and violent struggles on the part of the animal. When it was quieted, measures were taken to remove the left testicle, but there was none present at the beginning of the operation; the envelopes were now retracted and empty. All efforts to bring the testicle down were in vain. Two months later it was still absent. The animal had kept its bad habits of disappearing. *Second Observation*.—A very handsome cat, to be cured of his running habits, was to be castrated. Of kind disposition, he allowed the removal of the right testicle without much trouble. As the operation was to go on, the animal slipped away and ran under a piece of furniture. When secured a second time the left testicle was found absent, the envelopes were empty and retracted. It was only after twenty-two days that the organ returned to its position and could be removed.—(*Revue Gen. de Med. Vet.*, May, 1904.)

CEREBRAL TUBERCULOSIS IN A COW [*M. Bergeon*].—A cow has become sick; her appetite is delicate; she walks staggering, dislikes to rise and has periods of coma following others of excitement. Her general condition is rather good—when she eats she does it slowly, drops the food in the manger and then takes it up again, to swallow it with difficulty. She drinks in a peculiar way. At first she sips the surface of the liquid, then suddenly plunges the head to the bottom of the pail, and when breathing is about stopping, she raises her head and swallows slowly the remains of the pail. She carries her head low and inclined to the right. She gets up with difficulty; there is loss of coördination of movements; the pulse is slow and irregular; temperature 38°. The case is evidently due to chronic cerebral

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lesion. Tuberculosis is suspected and confirmed by tuberculin. The animal is slaughtered. Tubercular lesions were found in the lungs, the pleura and the pericardium, as well as in the pectoral lymphatic glands, and in the cerebral substance, where a yellow neoplastic deposit, as big as a large nut, caseous and of tubercular nature, was found.—(*Revue Veterin.*, May, 1904.)

FRACTURE OF THE TIBIA DUE TO TRAUMATIC OSTEO-PERIOSTITIS OF LONG STANDING IN A HORSE [*M. Leon Dupus*].—This case is exceptional in its nature as the fracture occurred only *two years* after the original injury. On August 20, 1901, until Sept. 21 of that year, a horse was laid up for a *severe contused wound on the internal face of the left tibia*. After its recovery, he resumed work and kept at it until Aug. 18, 1903, when he was found suffering with a complete fracture of the middle part of the tibia. The animal was destroyed immediately. At the autopsy, the following lesions were found on the tibia. The bone was fractured obliquely, in the middle there were several splinters, one of which measured 7 centimetres in length. When the pieces of bone were rid of the meat by boiling and brought together, it was observed that the two lines of separation joined together on the middle of the posterior face of the bone, forming with the pieces of the fracture an elongated Z. There were, besides, evidence of old osteo-periostitis and of an old split of the bone, which were positively due to the severe bruise received two years previously.—(*Revue Gen. de Med. Vet.*, June, 1904.)

FOREIGN BODY IN THE ŒSOPHAGUS NEAR THE PHARYNX IN A HORSE—GOOD RESULTS WITH PILOCARPINE AND ESERINE [*Leon Dupus*].—While being groomed, a mare seized from a tub full of carrots one of the roots and suddenly swallowed it without having had time to crush it. Taken to the drinking place, she was unable to swallow the water, which returned through the nose. She presented all the symptoms of Œsophageal obstruction. The foreign body was detected from the outside, arrested in the Œsophagus. Oil was administered, without result. Catheterism was attempted, but seemed to be so painful that it had to be stopped. A solution of pilocarpine and eserine (10 centigrams of the first and 5 of the second) was injected under the skin at 9 P. M. The effects of the injection were soon manifested, but as the animal two hours later seemed relieved of the acute pains, she was left alone, to be operated next morning, if indicated. The following day, the animal welcomed her visitor by a sound of clear neighing. During the

night the foreign body had been dislodged. This treatment recommended is one which certainly deserves attention and may after all in many instances give relief in cases where at first sight œsophagotomy seems the only chance of recovery.—(*Rec. de Med. Vet.*, June, 1904.)

CURIOUS CASE OF HEREDITY OF CATARACT IN A DOG [*M. Maleval*].—A cavalry officer has two black French poodles. One, a dog, very old and arthritic, has a double lenticular cataract; the other, female, has nothing abnormal in her sight. A first litter of these two dogs has given seven pups—five of which died with distemper. Of the two living, one had lenticular cataract when four months old and is now blind. In a second litter of eight pups, six were drowned, the two left showed manifest symptoms of cataract as soon as their eyes were open.—(*Rec. de Med. Vet.*, June, 1904.)

THERAPEUTIC EFFECTS OF CAFFEINE [*M. Jacoulit*].—In January, 1903, a five-year-old mare had double pneumonia. During the first eight days the disease was at its height, and as she refused all food, she rapidly lost flesh and became very weak. To strengthen her, stimulate her heart and her appetite, she was given *nux vomica* and two subcutaneous injections, one of artificial serum, the other of 0.50 centig. of caffeine in solution. Half an hour after, the mare was very agitated and had slight colics. This passed off after an hour, the animal remaining quite lively and with a little appetite. The next day she had the same treatment, without the injection of serum. Half an hour after the mare became excited, had light colics and at her right flank very peculiar jerks were noticed, which suggested the suspicion of her being pregnant. This had already been observed the day before. After an hour, she became quiet and received the injection of serum. In the afternoon, she had colics again and finally aborted. As after her delivery she seemed to be much depressed a second injection of caffeine (0.50 centig.) was made; when almost suddenly the colics returned accompanied with profuse hæmorrhage from the vulva, three litres of blood being thrown out. The next day, as the mare was again very depressed, thinking that all danger was passed, more caffeine was given, but the same manifestations recurring, its use was finally suspended and other stimulants resorted to, with which the mare was finally carried through. The author concludes: "This observation shows how prudent one must be in using caffeine, especially in hypodermic injections, when given to pregnant females or immediately after parturition, as

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in the minimum dose in which the alkaloid is indicated, it may promote abortion and abundant uterine hæmorrhage."—(*Bullet. de la Soc. Cent.*, June 30, 1904.)

NOTES ON THE TREATMENT OF SUMMER SORES BY ANTISEPTIC SUBCUTANEOUS INJECTIONS—CURIOUS RECOVERY AFTER ONE OF ANTISTREPTOCOCCIC SERUM [*E. Michelin, Army Veterinarian*].—The author has tried all the following methods with all kinds of modifications: antiseptic moist dressings, antiseptic dry dressings, astringents and caustics, actual cautery, broken ice bags—all with results rather unsatisfactory. Once he resorted to surgical interference, free amputation of all diseased skin; 36 hours after, the wound had resumed all its bad aspects. It occurs now to him to try subcutaneous antiseptic injections. The next day, after the injection there was a warm swelling, more or less painful, with the phenicated water (5 per cent.), oxygenated water, and permanganate of potassium. There never was an abscess. Moist dressings were kept over the part to keep flies away. Results obtained:—*Boric acid water*, 3 per cent., no result; *Van Swieten solution*, no result, suppuration lessened; *cresyled water*, 3 per cent., not to be recommended, it irritates too much; *phenicated water*, 1 to 2 per cent., no effect, 5 per cent. gives large swelling, cicatrization slower; *oxygenated water*, gives rise to large swelling, has no action on the recovery; *permanganate of potassium*, 2 per cent, increases the suppuration, makes cicatrization slower; *iodo-iodurated solution*, gave the best results, the sore remaining stationary, becoming dry and cicatrizing regularly; *bicarbonate of soda* has been successful in two cases; *antistreptococcic serum*, a mare has a bad sore on one side of the neck on August 10, nothing relieving her, an injection of 10 c.c. of serum is made on 15th round the sore, large, painful swelling at the point of inoculation follows the next day, suppurates two days later, in two days the aspect of the summer sore is changed for the better, tinct. of iodine and starch dressings are resorted to on the 19th, recovery.—(*Rec. de Med. Vet.*, July 15, 1904.)

"I CERTAINLY WOULD NOT BE WITHOUT THE REVIEW for many times its cost, as it is full of practical articles for the every-day practitioner, besides many articles along sanitary lines, which are of especial interest to one in State sanitary work."—(*J. C. Norton, D. V. M., Territorial Veterinarian, Phoenix, Arizona.*)

THE outside of a horse is a mighty good thing for the inside of a man.



## ARMY VETERINARY DEPARTMENT.

### PROGRESS OF THE ARMY BILL.

The Bill "to promote the efficiency of the veterinary service in the United States Army," as published in the issue of July, 1904, of the *AMERICAN VETERINARY REVIEW*, has been carefully gone over by the four veterinarians of cavalry and artillery, present at the St. Louis meeting of the A. V. M. Association. They had quite a lively time among themselves in their deliberations and they had besides a voluminous correspondence on hand, which made a decision still more difficult. However, they finally agreed on the Bill and the changes to be made in order to satisfy as much as possible the different wishes of those army veterinarians who took an active part in framing the Bill. The document is now ready for print, and will be privately distributed to all army veterinarians in the United States and in the Philippines, but no more alterations can now be made. As far as known practically, all army veterinarians are now agreed on this Bill, except those serving in the Philippine Islands, but they had previously given us assurance that they would be in accord with whatever measure would be adopted in the States. Dr. Griffin, as representing the artillery veterinarians, and Dr. Plummer, as representing the cavalry veterinarians, were chosen to officially forward the Bill with appropriate endorsements of their commanding officers, through military channels. This will be done as soon as the Bill is printed, but the exact date has not yet been fixed.

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### PROFESSOR LIAUTARD'S REJOINDER.

FORT ASSINNIBOINE, MONT., Sept. 6, 1904.

*Editors American Veterinary Review:*

DEAR SIRs:—When I prepared for publication the report on the repeated injections of mallein, heading it "the Nocard Treatment of Glanders," I had somehow a wireless message from my old friend, Prof. Liautard, at Paris, giving me a rejoinder for the choice of this headline, as also another message from my old antagonist, Prof. Williams, of Cornell University, informing me that cases of slight infection of glanders may recover without any treatment whatever.

The former rejoinder has come, the latter may yet come. But Prof. Liautard has made it rather easy for me, for instead

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of compelling me to go into a dissertation on the etymology of the word "treatment," which means about the same as the French "traitement" and the German "Behandlung," as far as my comparative knowledge of these three languages goes, I need only refer the reader to page 411 of the REVIEW, where, in recording the conclusions of Prof. Babés, of Bucharest, Prof. Liautard says on line 10:—" . . . . or submitted to the same 'treatment' "; and again on line 14:—" . . . . when the animals have been 'treated' by repeated doses of mallein . . . ."

The mere fact that our old friend applies here unconsciously twice the word treatment in connection with mallein, is proof enough that this word constitutes a broad term, and one which does not include in itself the meaning or intent of a positive cure. In fact, we frequently meet in English veterinary literature such combinations as: treatment of herds, treatment of flocks, hygienic treatment, dietetic treatment, orthopædic treatment, etc., showing to what extent this term may be used.

While I have taken pains to state in the introduction of my report that the term "Nocard treatment" was not of my own invention and how it came about to be used, yet I am willing to defend this term, as it has proven so beneficial in my campaign against glanders in the Philippines. Thus it was a feeling of acknowledgement and not of irreverence which led me to choose this term as a title.

The conclusions of Prof. Babés, as summarized by Prof. Liautard, are very interesting at this time. Undoubtedly Babés has had plenty of time and the best of facilities to conduct his experiments, and his conclusions are expressive and convey the idea that they are intended to be decisive. But I wish to point out to Prof. Liautard that the mallein treatment as applied in the Philippines stood the test of ordinary practice, and of military veterinary practice at that, with most complex and unfavorable conditions at the start. Yet, the situation unraveled itself in time so favorable, that it was most successful from a practical standpoint. As far as my conclusions are concerned, I did not permit myself to be carried away by enthusiasm, and if Prof. Liautard will carefully read over the whole of my report, he will find that they are in the main identical with those of Nocard and Babés, neither of which were known to me at the time.

Of course, I agree with Prof. Liautard that much of "the use of mallein as a therapeutic agent is to be left to a later date to be more thoroughly demonstrated," but a start has to be

made and contributions have to be kept up. The history of glanders teaches us that different outbreaks are of different virulence, and perhaps in a virulent infection the mallein treatment may be of little if any use. But this has yet to be demonstrated, and should not prevent any competent veterinarian from applying this treatment from which can be learned so much. I, for one, am confident that Nocard has given us a most powerful and humane weapon in the future combat of glanders epidemics.

OLOF SCHWARZKOPF.

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#### ARMY HORSE HOSPITAL.

Plans for a veterinary hospital have been approved by the army authorities. They provide for a type hospital for horses and mules engaged in and belonging to the military service. The institution will be known as a "quartermaster's stable for the treatment of sick and wounded animals," under which title it may be built at artillery and cavalry posts, out of existing appropriations, which do not convey the authority for the construction of a so-called veterinary hospital. For some time it has been recognized by cavalrymen that there was need of a better system of treatment of public animals. Veterinarians are employed, but there has been much difficulty in obtaining suitable men for this position, and now there are some six vacancies. The new stable will be built at those places where there are enough public animals to justify a hospital, and the plans are so arranged that the building may be easily expanded to meet the demands at different posts.—(*New York Tribune.*)

HORSE LINIMENT FATAL AS A SUBSTITUTE FOR WHISKEY.—*Bridgeport, Conn., Sept. 22.*—Two men dead and a third dying in the Bridgeport Hospital is the record made by a keg of horse liniment compounded principally of wood alcohol and witch-hazel, kept for rubbing down horses at George F. Cook's livery stables here. The dead men, hostlers, are James Murray and Robert Nevins. The third is the stable veterinary, Dr. Frank T. Wade. The men had been to Manassas, Va., to take care of horses furnished to officers of the Third Regiment, Connecticut National Guard, by Mr. Cook. They could get no intoxicants while away, and upon their return started to drink. Sunday, having no liquor, they tapped the liniment keg, Dr. Wade knowing the mixture contained a large percentage of alcohol.—(*N. Y. Evening Telegram.*)

## SOCIETY MEETINGS.

### NEW YORK STATE VETERINARY MEDICAL SOCIETY.

The 14th annual meeting was called to order by President George H. Berns, in The Assembly, Pierrepont and Fulton Streets, Brooklyn, on Tuesday, Sept. 13, at 11 A. M., who introduced Hon. Martin T. Littleton, President of the Borough of Brooklyn. In very cordial and felicitous words the distinguished orator welcomed the veterinarians to the city, and at once made all feel that they were among people who were glad that they came.

The President then delivered his annual address, as follows:

#### PRESIDENT BERNS' ADDRESS.

"The main purposes for which this organization was formed fourteen years ago by a few earnest and enthusiastic veterinarians was to elevate the standing of the veterinary profession and to contribute to the diffusion of knowledge pertaining more particularly to veterinary medicine and surgery. These objects, I am pleased to say, have never been lost sight of. Through the untiring efforts of a few of our members, laws have been enacted by the Legislature of this State, which are admitted to be the best veterinary State laws in the country, and if properly enforced are destined to aid to a very large extent in placing veterinary medicine where it rightfully belongs, and that is, second to none in the rank of the learned professions. Its provision for properly equipped colleges for a liberal basic education of intending students for a three years' graded course at college, for a State Examining Board, for the licensing of all practitioners by the Regents of the University of the State, etc., have already accomplished a great deal in elevating the profession by driving out of its ranks a number of men who have disgraced our noble calling for years, and are sure to accomplish much more in the near future by keeping incompetent and otherwise undesirable material out of it.

"At all of our annual meetings valuable original papers on the etiology, symptoms, best methods of treatment of the many diseases of our domestic animals, have been presented, interesting and unusual cases reported, contagious and infectious diseases transmissible from animal to man have been carefully studied; animal food products dangerous to the health of man



considered, etc. ; but it must be remembered that new discoveries are made almost every day, and in order to keep abreast of the times, the veterinarian must remain a student as long as he continues to practice. I am very sure that there is no place where more valuable knowledge can be obtained than at meetings of associations of this kind, where practitioners can compare notes, interchange views, and witness rare and difficult surgical operations. The man who is satisfied to keep to himself and rely upon the knowledge he obtained at college and upon his individual experiences, will sooner or later discover that he is a few years behind the age, and is certainly not in a position to be of as much service to his patients, and indirectly to his clients, as he would be if he had kept abreast of the times. The public justly expects of us to be in a position to do all that can be done,—all that scientific researches and discoveries enable us to do for the animal that is placed under our care. On the other hand, if the patient is in such condition as to render treatment inadvisable, we must be able to advise our clients accordingly, for the success of every practitioner of veterinary medicine depends very largely upon his ability to save dollars and cents for the man who employs him.

“Among the older practitioners, and more particularly those who do not deem it necessary to attend association meetings and fail to read the veterinary literature of the day, the importance of asepsis and antiseptics are underestimated and frequently entirely ignored. Through the kindness and courtesy of Dr. W. L. Williams, I have been fortunate enough during the last few weeks to witness a number of major operations on horses, which a few years ago I would have considered as extremely dangerous, and therefore impracticable. Synovial sheaths of tendons, navicular bursæ, and in two cases the corono-pedal articulations were opened with impunity, the articular surfaces of bones curetted, necrotic portions removed, etc., and I am pleased to say that, from present indications, I have every reason to look for satisfactory and comparatively speedy recoveries. Of course, it is needless to say that these operations were most skilfully performed, and under fairly aseptic conditions, and I am satisfied that cleanliness and disinfection were the main factors in producing the extraordinarily favorable results so far obtained. It is extremely gratifying to note the wonderful changes for the better which have taken place from time to time in our profession. Forty years ago qualified veterinarians were few in number, and most of them received but slight recognition.

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The chief reason for this was veterinary practice was not restricted by law, and the field was almost entirely occupied by men who assumed the title of veterinary surgeon without any authority whatever and without any scientific training, thus deceiving the public and ruining the chances of the few qualified men who had attained their professional education in European schools, as none existed in this country. The owners of live stock had been imposed upon by these ignorant and unscrupulous pretenders for so many years that the early graduates of American colleges, and honest, self-educated veterinarians found it very hard indeed to inspire confidence and gain recognition; but following the examples of such men as Dr. Liautard of New York, Dr. Law of Ithaca, Dr. McEachran of Montreal, and others, they advanced gradually but surely in the estimation of the public, and by their unselfish devotion to their profession and good, skilful scientific work gained the confidence of the people and paved the way for the proud position our calling occupies to-day. Forty years ago there were but two or three qualified veterinarians in Brooklyn, and while their services were in fair demand, they were regarded as 'horse-doctors' and treated as such in social life. To-day we have over one hundred registered veterinarians in Kings County, and I believe that, as a class, our position socially, financially and morally, compares favorably with that of any of the other professions.

"At this meeting this Society is called upon by the laws of the State to place in nomination ten names for State Veterinary Medical Examiners, five of whom are to be selected by the Governor to succeed the present Board, whose term of office expires. It is a most important duty, and deserves the careful attention and consideration of every member present. Among the reports of committees I have reasons to believe that the report of our Prosecuting Committee will prove interesting and instructive. Laws, no matter how good and efficient, amount to absolutely nothing if not enforced; in fact, the non-enforcement of existing laws breeds contempt for all laws. I am informed on very good authority that quite a number of recent graduates have opened offices and started in practice without having taken the State examination, and that others, while registered in other States, have come to New York, opened offices, and are practicing in direct violation of the laws. These practices should certainly be stopped, and I believe it to be the duty of this Society to see that they are discontinued.

"In my official capacity as President of this Society, I have

received a large number of letters from members, and I regret to say that a few of them were written on illustrated letter-paper; some contained the picture of a small horse, others a horse's head, others a group of horses, and one pictures of buildings occupied by their owner. While this offense is not a very serious one, and I have reasons to believe that many have used this stationery for so many years that they have become so accustomed to seeing these illustrations, that they really do not know that they exist. It remains that they are a violation of our code of ethics, and I hope their use will be discontinued.

"As our Society increases in numbers, it increases in importance and influence, and it seems to me that the time has arrived when its proceedings should be published in book form and distributed among its members and other scientific bodies. I would therefore suggest that a committee be appointed to consider the advisability of this course and report at an early date. The large volume of business before us, the excellent literary programme, and the number of clinical cases presented by veterinarians from New Jersey, New York and Brooklyn, I am sure will occupy every minute of the time at our disposal; and I sincerely hope that with your coöperation this, our fourteenth annual meeting, will prove to be fully as successful and of as much value as any of those that have preceded it."

#### ROUTINE BUSINESS.

The routine business of the meeting suffered somewhat on account of the non-arrival of the Secretary's strong box, containing his report and the papers belonging to his office. The afternoon express, however, brought the documents, and the delayed report was submitted. It dwelt minutely with the affairs of the Society, showing the great amount of work which the increased membership and the larger scope of the organization have thrown upon the Secretary's shoulders. In his dual capacity of Secretary and Treasurer, Dr. Wm. Henry Kelly was enabled to speak of the financial status of the Society, and it was clearly demonstrated that the income from dues are not sufficient to meet the increasing expenditures. Later in the meeting the by-laws were amended by raising the dues from two to three dollars per annum.

Dr. Kelly is also Chairman of the Prosecuting Committee, and he told of the work done by this committee, which had received 70 complaints, many of which were satisfactorily disposed of by correspondence, the offenders giving up their practice or removing from the territory. Three prosecutions were

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undertaken during the year, all of which were carried to a successful issue. In each case an attorney had to be employed, and the Chairman estimated that it cost the Society about \$75 in each instance. These cases had entirely consumed the fund raised for this purpose by voluntary subscription, and he appealed to the membership to continue the work which the committee had inaugurated by subscribing liberally to a new fund. A debate ensued as to the best means of securing money for the purpose, some holding that more could be secured by levying an assessment upon each member, while others thought it should be wholly voluntary. The Chairman gave his experience in collecting money from the members through the mail, and it was suggested that a subscription be started at once among those present, a letter being forwarded to absent members asking their coöperation. The list did not grow very rapidly; but on the second day the list was again sent around. It was passed from member to member, without receiving a signature, when some one jocularly remarked that if Dr. Morris, who had started the book on its rounds, would subscribe \$25, the others would follow suit. Dr. Morris at once took the floor and said he would subscribe \$25 if every man would give \$5; further, that he would give that sum if ten men would contribute \$5. He was quickly taken up, and names went down with a rush, the challenger being congratulated upon his success in so quickly swelling the fund. Those who were not present should take advantage of the invitation which will be afforded them of contributing to this cause. It is certainly as little as they can do while the committee gives its time and labor for their benefit.

Chairman Kelly told of the great difficulty experienced in securing evidence against the offenders; practitioners sent in complaints and expected the committee's attorneys to at once descend upon the miscreants and place them behind prison bars. He wished it to be clearly understood that evidence sufficient to convict must be furnished the committee. A simple signed prescription was not enough; it could not be proven that the offender wrote it; the fact that such a person had prescribed for sick animals was not enough; a receipt showing that he had accepted a fee, and that he posed as a veterinary surgeon, were required in every instance. He asked all having cognizance of illegal practitioners to secure convictable evidence, and forward it to the committee, which would at once take steps to prosecute the case. The report led to considerable discussion,

which was participated in by Drs. Law, Kornobis, Bell, Williams, and others.

For several years the Society has sought to devise some means of publishing the proceedings of its annual meetings, most of the papers presented being thought of such value that they should be preserved in library form. As a result of the discussion of this question, the President appointed a committee, consisting of Drs. Williams, Morris, and Bell, to consider and report upon the practicability of publishing the papers and proceedings in book form. After thoroughly considering the question in its various phases, the committee concluded that the undertaking would be too expensive; but an arrangement was made with the publishers of the REVIEW whereby the members can have the Secretary's report of the minutes of the meeting and all the papers presented. The REVIEW will publish every paper in the next three or four issues; then a brief *résumé* of the proceedings will be issued in pamphlet form, together with a fly-leaf, in the nature of a "key," which will indicate the volume, number, and page of the REVIEW in which each paper may be found. As most, if not all, of the members of the Society are regular subscribers to the REVIEW, a full report of the proceedings may thus be obtained and preserved.

#### NEW MEMBERS ELECTED.

The Board of Censors reported favorably upon the following applications, and they were elected to membership:

F. B. Simons, D. V. M., Hoosick Falls.  
Frank J. Loomis, D. V. M., Phoenix.  
C. R. Biederman, D. V. S., Huntington.  
F. G. Shepard, V. S., Gowanda.  
Herman Stark, D. V. S., New York City.  
Winfred B. Mack, D. V. M., Ithaca.  
John Greer, D. V. S., Malone.  
D. J. Mangan, V. S., New York City.  
Major Schofield, V. S., Sheepshead Bay.  
Herman Koch, D. V. S., Brooklyn.  
Wright J. Smith, D. V. S., Kingston.  
John McTamany, V. S., Brooklyn.

#### STATE BOARD OF VETERINARY EXAMINERS.

The term of office of the present Board will expire with the year, and it devolved upon the Society to furnish ten names to the Governor, from which list he will select five veterinarians to constitute a new board for the following five years. Fifteen names were ballotted for, the following ten receiving the high-



est number of votes: Drs. E. B. Ackerman, Brooklyn; G. T. Stone, Binghamton; C. E. Clayton, New York; T. G. Sherwood, New York; W. H. Kelly, Albany; D. J. Mangan, New York; T. F. O'Dea, Saugerties; A. G. Tegg, Rochester; E. J. Nesbitt, Poughkeepsie; J. W. Corrigan, Batavia.

For the next place of meeting there were two candidates—Ithaca and Niagara Falls, the former being selected by a majority of 7 votes.

#### PAPERS AND DISCUSSIONS.

"A Rapid Method of Diagnosing Rabies," by Veranus A. Moore and Cassius Way, was presented by the latter gentleman, and it proved a veritable professional sensation. The paper will be found elsewhere in this number of the REVIEW. The members evinced the greatest interest in the subject, believing that a great advance had been made in the recognition of a disease where delays are dangerous. The discussion was both animated and instructive, those taking part in it being Drs. Moore, Law, Bell, Williams, McLean, Reed, and Stone.

"Immunization," was the title of a scholarly thesis by Prof. James Law, who treated the subject in a thorough and painstaking manner from every point of view. It was listened to with the closest attention, and will be better appreciated when it appears in print, as it can then be more thoroughly digested, and it will bear careful reading and study.

Dr. Werner Runge, of Newark, N. J., at the invitation of President Berns, very kindly drove his famous osteo-porotic gelding over from Newark that the members might witness one of the most remarkable recoveries from this disease on record. This horse was sired by an imported English hackney, and when three years old (he is now six) was condemned to be shot on account of a severe attack of "big head." He could not stand, and his facial bones had become so enlarged that he bore little resemblance to a horse. He was given to the Doctor, who removed him to his hospital in an ambulance, where he remained in slings for many months. His nasal chambers were so constricted by the encroachment of the enlarged bones that tracheotomy was performed, while the two inferior maxillas so closely approached each other that a finger could not be gotten into the intermaxillary space. His diet consisted chiefly of molasses with ground beans, while he received bone phosphates continually in his food. He has frequently been exhibited at the meetings of the New Jersey Association, at one of which he was emasculated. As shown in Brooklyn, after the drive from

Newark, he was a handsome, healthy-appearing horse, with remarkable knee and hock action, showing every evidence of perfect health and great endurance. The bones have greatly decreased in size and firmness, and will probably never again suffer any inconvenience from his remarkable experience.

"Molasses as a Food for Horses," by Dr. Pierre A. Fish, was read by title only, its author not being present, and it will be published in the REVIEW.

"Intussusception in a Five-months-old Colt" was a report of a case which came under the observation of Dr. C. E. Shaw, of Brooklyn. The Doctor described the symptoms minutely, and thought there were only two ways of diagnosing the accident—in case of death by autopsy, and in case of recovery by finding the slough of the invaginated bowel in the fæces. Unfortunately, during the progress of the symptoms it is impossible to differentiate it from volvulus, mesenteric hernia, etc., so that operative interference is hardly feasible. The case was discussed by Drs. Howard and Bell.

"Resection of Flexor Pedis Tendon for Infected Wounds of the Navicular Bursa" was in the nature of a description of the operation which Dr. W. L. Williams has been demonstrating for some time. As the Doctor has kindly consented to report the clinic for an early number of the REVIEW we will reserve the points of his paper for his account of the operation.

"Clinical Study of Anthrax in Cattle," by Dr. S. H. Burnett, was a valuable contribution to the study of the pathology of this disease, and, as with all of Dr. Burnett's investigations, shows great care and originality.

"The Physiology of the Rubber Horse-Shoe Pad" was a practical addition to the programme by Dr. Roscoe R. Bell, intended more to bring out the experiences and ideas of the members than to exploit his own opinions. While the discussion was rather spiritless, one point at least showed that there was much in the paper upon which the members differed. For instance, the essayist thought the ground surface of an unshod foot, one that had never worn a shoe, was as a rule flat or level, while some others were of opinion that it was concave. If opinions differ upon such a simple proposition as this, the author of the paper was not mistaken when he assumed that the whole subject was one which could profitably be discussed. Those taking part were Drs. Morris, McLean, Reed, and others.

"Etiology and Morbid Anatomy of Diphtheria in Chickens" was a recital of the original investigations of Dr. W. B.

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Mack, of Ithaca, and were freighted with many new facts concerning this disease. Within the past few years the diseases of barn-yard fowls has engaged the attention of a number of veterinary pathologists (notably Salmon, Moore, Harrison, Ward and Mack), and the importance of the industry has been shown to be very much greater than would appear to the casual observer. While it would scarcely pay a poultryman to have individual cases treated by medical experts, the veterinarian should be in position to give valuable advice in case of an outbreak of any of the rather numerous contagious and infectious diseases to which they are subject (such as roup, diphtheria, tuberculosis, etc.), with the object of ridding the flock of it, and the treatment of the affected ones by the flockmaster.

Possibly the most interesting discussion of the meeting occurred upon "Maladie du Coit," following upon the remarks of Dr. V. A. Moore, who had been sent by the Commissioner of Agriculture of New York State to Lethbridge, Alberta, Canada, where it was expected that about 200 head of range mares which had been placed upon a quarantined ranch, last spring, supposed to be suffering from dourine, would be slaughtered, the object being to study the clinical and bacteriological characters of the disease, so that in case it were to make its appearance in the Empire State competent authority would be in position to recognize it, as it is sometimes mistaken for other venereal disorders of very much less importance. It transpired that, when the Canadian authorities visited the quarantine, they found the animals greatly improved, in excellent condition, leaving some doubt as to whether the disease really was dourine or not. A few of those showing lesions similar to the suspected disease were studied, and a preliminary report made. The Doctor communicated the fact that the Canadian Inspector General intended to carry on extensive experiments to determine definitely the true character of the disease from which the mares had suffered, and it is evident that ere long we shall have an important report from that quarter. The discussion which followed this report was very animated and instructive, being participated in at length by Profs. Law and Williams, both of whom have had considerable experience in previous outbreaks, while interrogatory remarks were made by Drs. Noörgaard, Cowie and others.

The time of the Convention was now well nigh exhausted, and the papers by Dr. R. A. McAuslin on "Hypertrophy of the Heart," and Dr. V. A. Moore on "Tubercle Bacilli in the Milk

of Reacting Cows," were read by title and referred to the REVIEW for publication.

#### THE CLINICS.

These were held on Tuesday and Wednesday evenings, on Wednesday morning, and the entire forenoon of Thursday. Every operation scheduled was performed, and many others in addition, and we believe the 1904 clinic was the very best ever held in this country or perhaps in the world. The REVIEW has made arrangements with Drs. Berns and Williams to secure a full, detailed report of each case presented, together with its outcome, and it will be published as soon as the results of all the surgical operations are known.

#### \* \* \* NOTES OF THE N. Y. S. V. M. S. MEETING.

Twelve names were added to the membership. There should have been fifty.

Connecticut sent Dr. Bland, of Waterbury, and Dr. Colton, of Hartford, the former being accompanied by Mrs. Bland.

A glorious meeting. Must take rank with the A. V. M. A. in point of educational importance, and far surpass it in clinical results.

Sharp & Smith, of Chicago, and Sykes & Street, of New York, had instrument displays in the lobby of the Assembly, as did the Norwich Pharmacal Co.

The local committee (composed of Drs. Doyle, Hanshew, Clayton, McCully, and Ellis) worked in perfect harmony, and the success which they achieved has marked them for future events.

President Berns' first year in the chair was marked by great enthusiasm, and there is no doubt but that when he turns the reins over to his successor the Society will be in much better shape than when he received them.

Back to Ithaca next year. The clinical facilities which she furnishes is a winner always when Brooklyn is not a candidate. We rather expect that Manhattan will be a bidder next year, and thus the field of eligible cities will be enlarged.

A majority of the members of the Army Committee of the A. V. M. A. being in attendance upon the meeting of the New York State Society (Lowe, Kelly and Bell) an informal meeting was held and a preliminary plan of action decided upon.

Massachusetts was represented by Dr. Howard, of Boston, and Dr. Perry, of Worcester, the latter being accompanied by his wife and little boy. Each remained the three days, accom-

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panying the party to Coney Island, and expressed themselves as being well repaid for their trip.

The trip to Coney Island was one of the most enjoyable occasions we have ever participated in. There were about sixty who remained over for it, and it is certain that those who failed to do so missed a rare treat. About fifteen ladies were in the party, and Luna Park and Dreamland were "done" from "The Incubators" to "General Bumps."

New Jersey sent enough of its earnest men to have made a respectable meeting of its own. Fifteen names from that State may be found among those in attendance. We noticed Drs. Little, Newark; Smith, Jersey City; Everitt, Hackettstown; Hendren, Newark; Runge, Newark; English, Jersey City; Dixon, Hoboken; Dickson, Seabright; J. Payne Lowe, Passaic; McBride, Jersey City; Ferguson, Paterson; Hopper, Ridgewood; Wm. Herbert Lowe, Paterson; Butler, Westfield, and Pope, Athenia.

The objection urged by the inexperienced against the Phillips' Stomach Tube was shown by Dr. Hopper in the clinic to be without foundation if properly introduced and withdrawn. Nasal hæmorrhage was entirely missing in the case demonstrated, the operator explaining that if the tube was very slowly withdrawn, particularly at the last moment, this could be overcome. Dr. H. said that up to that time he had employed the tube in seventeen cases of gastric tympany with perfect success, and that it was remarkable how quietly the patients would stand, even when suffering great pain. He thinks it as practical and safe as enterocentesis, and a better therapeutic measure, since there is not nearly the danger in cæcal as in gastric distension.

Dr. W. L. Williams came to Brooklyn about the first of September, and rode with several of the Brooklyn veterinarians to gain an insight into their methods of conducting practice and to witness the character of the cases which most frequently call for their services. But the local practitioners know a good thing when they see it, and they at once begun supplying him with material for operations, and he was kept busy on his Bayer operation for quittor, resection of the flexor pedis tendon for infected nail wounds of the navicular bursa, etc., so that they enjoyed a post-graduate season in surgery for two weeks. At Dr. Berns' hospital there was a horse on the operating table every day, possibly two or three, to which the practitioners of the city were invited, while other veterinarians were fortunate enough to secure his services for similar cases. When he re-

turned to Ithaca after the convention he carried with him an elegant gold watch from his Brooklyn friends, inscribed as a souvenir of his pleasant sojourn with them. In the *interim* of his surgical exercises he indulged in piscatorial diversions, under the pupilage of those ardent followers of Izaak Walton, Drs. Hanshew and Waters, who were on one of their excursions accompanied by Drs. Berns and Ackerman.

#### AMERICAN VETERINARY MEDICAL ASSOCIATION.

While a concise account of the great meeting at St. Louis, August 16-19, was given in the September REVIEW, many features did not receive the attention to which they were entitled or else were crowded out on account of the pressure upon our pages. Some of the events which failed to be noted in that number will therefore appear in this and subsequent issues.

Dr. E. M. Ranck, of Natchez, Miss., who was present throughout the clinic, has very kindly furnished the REVIEW with the following account of the clinic held on the fourth day:

##### THE CLINIC.

The surgical and medical clinic was conducted on Friday, August 19th, in the Coliseum, a place admirably adapted for the purpose. There was an abundance of interesting clinical material furnished by Drs. C. W. Crowley, W. F. Heyde and Chas. Ellis, of St. Louis. The operators were prompt and the operations and demonstrations were interesting as well as instructive. It was generally conceded that this clinic was altogether the most satisfactory one held since the clinic feature was inaugurated by the American Veterinary Medical Association. The Kansas City Veterinary College operating table (rocker table) was used, and Dr. F. F. Brown, of Kansas City, handled the table to perfection. There was not the least difficulty experienced in confining all patients securely and satisfactorily. The following cases were presented for operation and demonstration:

*Case I.*—Bay gelding, operated upon by Dr. C. C. Lyford, Minneapolis, Minnesota, for sidebone lameness, complicated by quittor. This was a case of long standing, where other forms of treatment had failed. The horse was placed on the table and operated upon under chloroform anaesthesia. The lateral cartilage was completely removed and antiseptic after-treatment advised. Time required for operation, 40 minutes. Prognosis favorable.

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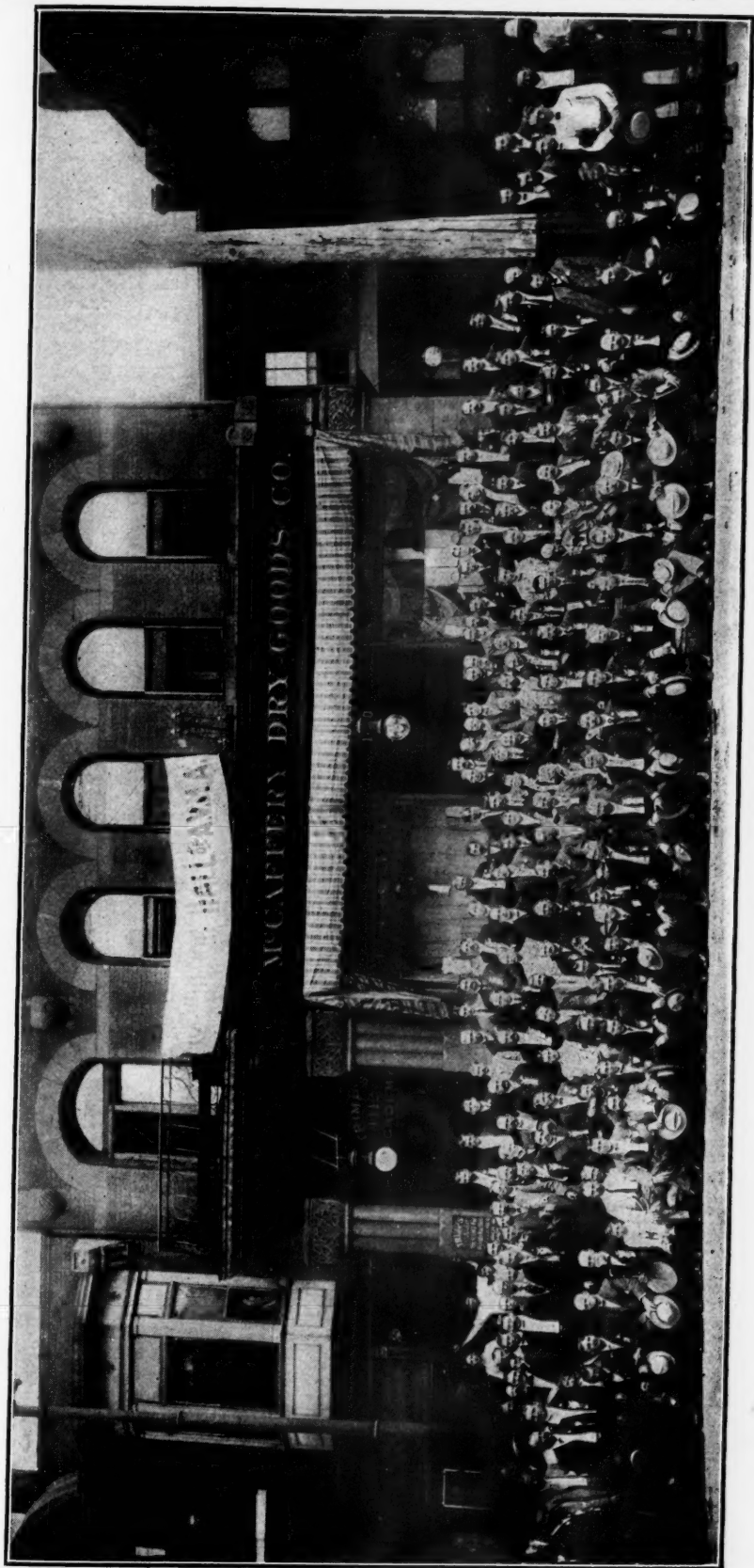
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THE A. V. M. A. AT ST. LOUIS—SECOND DAY—JUST ADJOURNED FOR LUNCHEON.

*Case II.*—Black stallion, thirteen years old, castrated in standing position without any means of restraint, in 15 seconds, by Dr. George R. White, Nashville, Tennessee.

*Case III.*—Bay stallion, four years old, castrated in standing position, with twitch on nose as only means of restraint, in 8 seconds, by Dr. George R. White, Nashville, Tennessee.

The above two operations were performed in a most scientific and skilled manner. The operator explained that it was necessary to produce about eight pounds traction on the cord and cut off on a level with the skin incision. When this is done there will be no danger from leaving portions of the epididymis on the stump of cord. He stands on left side of horse with left shoulder firmly pressing in horse's flank, and with left hand grasps scrotum above testicles, pressing same downwards and backwards. Then with right hand, in which is held a short-bladed castrating knife, two incisions are quickly made and both testicles are at once exposed. These are taken away with the emasculator, and the whole operation is done in less time than it would seem possible. It is very noticeable that the operation must be done boldly and quickly, and the animal has scarcely time to realize what has happened.

*Case IV.*—Bay mare, driver, lame in left hind. History: slipped a month before and went lame immediately; did not warm out of it entirely. Diagnosis by Dr. A. H. Baker. After she had stood for half an hour and cooled out, the spavin test was given by flexing the hock and the lameness was much aggravated. The inner and lower portion of the hock was smooth and a slight fullness was visible from behind. It was pronounced a bone spavin. Recommendation: Actual cautery in feathered lines, blister, and rest for three months on a level floor. Prognosis favorable.

*Case V.*—Bay gelding, eight years old, a confirmed roarer. Arytenectomy was advised and performed by Dr. J. S. Anderson, Stewart, Nebraska. This animal was confined on table and operated upon under general anæsthesia, according to the latest and most successful method. It was evident to all present that the operator was thoroughly familiar with the operation, and on this occasion did a nice, clean and quick operation. The parts were cleansed, incision made, vessels ligated, cartilages and vocal cord removed, wound dressed and sutured in 30 minutes. Prognosis favorable.

*Case VI.*—Bay gelding, racer, bowed tendons in right fore leg, had been fired in perpendicular lines. Lamé on the trot.



Diagnosis by Dr. A. H. Baker : Severe thickening by neoplastic tissue of tendo-perforatus, and slight thickening of perforana. Suspensories sound. Recommendation : Actual cautery applied in feathered lines, blister, and eighteen months' rest. Repeat blister after six months. Prognosis favorable.

*Case VII.*—Passing "Phillips' Improved Stomach Tube." Demonstrated by Dr. George R. White, Nashville, Tennessee. This tube was first passed through right nasal chamber and entered œsophagus and stomach without difficulty. It was then withdrawn and passed through left nasal chamber, and stomach filled with water by means of injection pump; the pump was detached and the stomach emptied itself through the tube by the syphon method. There was a slight hæmorrhage from left nostril after withdrawal of tube. The operation was done in a thoroughly efficient manner, and caused quite a lengthy discussion by the members and the operator. This tube is a well-made and valuable instrument. Its introduction is easy and simple, and there is no reason to believe that it will not soon come into universal use by veterinary practitioners.

*Case VIII.*—Sorrel gelding, intensely lame on right hind. History : Furuncle on inner aspect of right pastern. Diagnosis by Dr. A. H. Baker : Open pastern joint, large granulating swelling, suppurating and discharging synovia freely. Temperature, 103° Fahrenheit; pulse, 48, small and hard. Recommendation : Destruction.

*Case IX.*—Greyhound dog, six years old, operated upon by Dr. George R. White, Nashville, Tennessee, under ætherization by Dr. M. Jacob, of Ames College, to demonstrate end-to-end intestinal anastomosis with Murphy button. This was very interesting and instructive, and conducted in a most efficient manner. About four inches of the intestine was excised and the ends brought together with a section of the button inserted in each end of the severed gut in such a manner that the serous coats were in apposition. The external incision sutured, with one set of sutures going through the skin, abdominal muscles and peritoneum. This method, according to White, is better than making separate sutures for the skin and underlying structures, since they are easier removed. After about five days the button will be expelled in the fæces and can be used over again after replating. This operation is very important and is practical, and caused quite an amount of interest in the clinic.

*Case X.*—Brown mule, intensely lame on left fore limb. History : Furuncle on inner part of leg, just above fetlock.

Diagnosis by Dr. A. H. Baker. Leg swollen from foot to knee, suppurating, granulating surface on inner part of leg just above fetlock, pastern in state of immense inflammation with several large necrotic ruptures in the skin. Prognosis unfavorable. Recommendation: Destruction.

*Case XI.*—Vaginal ovariectomy operation on mare by Dr. R. P. Lyman, Hartford, Connecticut. The vagina was cleansed by flushing with a goodly amount of antiseptic solution; the operator's hands and instruments were rendered antiseptic, after which the operation was performed quickly and in a thoroughly surgical manner.

*Case XII.*—Bay mule, with an irregular bursatti sore on left shoulder just above the spine of the scapula, about two inches in diameter, and one on the left side of the top of the neck where the collar bears. Diagnosis by Dr. A. H. Baker. Recommendation: Extirpation with the knife and dress with camphorphenique. Prognosis favorable.

*Case XIII.*—A typical specimen of the "nervous," "stiff-legged," or "fainting goat" of Tennessee was exhibited from the stage of the Coliseum by Dr. George R. White.\* This goat was certainly an interesting adjunct to the clinic. Dr. White stated that there were not over one hundred of these goats in existence at the present time, and that they were confined to a small locality in Tennessee. They are easily frightened and to simply say "boo" at them is sufficient to cause them to fall to the ground in tetanic convulsions, which last from fifteen to twenty seconds. They are certainly as stiff as it is possible to get while in this paroxysm. The demonstration was made at this clinic by having the goat under a covered crate for several minutes before disturbing him; then the crate was suddenly removed, and the goat scared; he became stiff, tottered and fell to the floor, thereby typically demonstrating the inherited nervous characteristic claimed for this breed. After the goat lay in this stiffened condition for a few seconds (fifteen to twenty) he got up and walked off as though nothing had happened. The question is: What is the cause of this peculiarly developed neuro-muscular system?

*Case XIV.*—Bay mule, very lame in left hind. Diagnosis by Dr. A. H. Baker: Nail prick through outer side of frog about one inch back of its toe, suppurating freely, tendon injured. Recommendation: Remove detached frog and bar, ster-

\* A full description of these peculiar animals was published, with illustrations, in the September REVIEW.—EDITOR.

ilize with hydrargyrum bichloridum (1 to 500), then dress with oxychlorine powder and powdered alum in equal parts mixed, once a day. Prognosis favorable.

There were many other cases on hand ready for examination, operation, etc., but as the hour was now late no further time could be devoted to them. This clinic was well attended, and judging from the interest shown it is now certain that the *clinic* is an established feature of the annual meetings of the A. V. M. A.

(E. M. RANCK.)

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#### DEMONSTRATION OF THE OZONE CONTAINED IN "TALLIANINE."

The American agents of this popular preparation, Messrs. Sykes & Street, of New York, having been asked by a number of veterinarians to demonstrate to their satisfaction that the amount of ozone claimed by the manufacturers really existed in the liquid, "Tallianine," decided to make a public demonstration of its chemical composition, so far as the presence of ozone is concerned, before the large number of veterinarians present at the St. Louis meeting from all parts of the American continent, hoping in this manner to establish the absolute honesty of their claim to the profession. Accordingly they instructed Dr. L. J. Mates, their chemist, to issue invitations to all in attendance who might be interested to witness his methods and results. The method employed was that of Otto, and from its simplicity and accuracy, leaves nothing to be desired. The process is essentially a volumetric one, requiring only two solutions, viz.: one of hyposulphite (thiosulphate) of soda, containing 6.583 gr. per litre, and one of potassium iodide, 16.6 gr., and sulphuric acid 9.8 gr. per litre. The *modus operandi* of the test is to withdraw from a tube of "Tallianine" 2.5 c.c., place in a small flask and add 20 c.c. of the iodine solution, then agitate until the yellow tint is apparent. Now titrate with the hyposulphite solution, heating on a waterbath after each addition of hyposulphite is made, repeating until no further discoloration of the solution in the flask is apparent. The usual number of cubic centimetres of the standard hyposulphite solution for each 2.5 c.c. "Tallianine" varying from 16 to 18 c.c. and is equivalent to 3.87 to 4.36 *volumes* of ozone. The tests made at the Convention showed the uniformity of the product and the value of this method of demonstrating its strength. Contrary to some opinions, "Tallianine" is not a "serum" nor an "antitoxine," but is the result of a special chemical process, the

certainty of its action being such as to yield a product of absolute uniformity and definite in its chemical composition.

### INTERSTATE ASSOCIATION OF LIVE STOCK SANITARY BOARDS.

The Association convened in annual session at the Monticello Hotel, St. Louis, Mo., Aug. 23, 1904, following the meeting of the American Veterinary Medical Association, and was decidedly the most successful meeting of this Association ever held. The organization has assumed a prominent position among associations of this character, and unquestionably will continue to grow in usefulness and importance. While it has no power to impose rules and regulations covering live stock diseases, yet the influence of its members and their knowledge of the wants of various States, have helped materially in building up the sanitary work of the country. This Association will be the means of doing away with antagonisms which threaten interstate traffic; of drawing sanitary officers into closer relations to the betterment of their commonwealths and the production of uniformity of interstate regulations.

A large representation from the various States was present. Among those in attendance were State Veterinarian Lucky, of Missouri; Prof. R. R. Dinwiddie, of Arkansas; Hon. W. J. Moore, San Antonio, Texas; M. M. Hankins, Chairman State Cattle Commission; State Veterinarian W. A. Knight, of Texas; Dr. C. Lovejoy, State Veterinarian, and Dr. L. C. Tiffeny, Assistant State Veterinarian, and Hon. W. P. Smith, Illinois, and Drs. Reynolds, Ward and Cotton, of the Minnesota State Live Stock Sanitary Board. Oklahoma was represented by Hon. W. E. Bolton, Thos. Morris, Chairman of the Oklahoma Cattle Commission, and T. A. Becker. Nebraska, Montana, Arizona, and Colorado were represented by State Veterinarians Thomas, Knowles, Norton, Lamb, and Glover, respectively. Col. A. Dean, Dr. L. J. Allen, Dr. L. A. Klein, and Dr. A. H. Wallace represented the Bureau of Animal Industry, and contributed very materially by papers and discussion to the success of the meeting.

The meeting was called to order by President J. C. Norton, of Arizona. Dr. D. F. Lucky, State Veterinarian of Missouri, presented an address of welcome, which was responded to by Dr. C. P. Lovejoy, of Illinois.

President Norton followed with the annual address, in which



he called attention to the good work which had been carried on by the Bureau of Animal Industry under the able management of its present chief. He spoke of Dr. D. E. Salmon as deserving the gratitude of the stock industry of the United States for his splendid work in eradicating and controlling so many contagious diseases of live stock, and for assisting State authorities in the control of State traffic. Touching on tuberculosis, the President drew attention of the members to the fact that as sanitary officers we should not go to the extreme of destroying valuable property uselessly, but should have in view the ultimate eradication of this disease. He stated that the cost of eradication would be considerable, but the loss without eradication is equally as great each year as long as the disease is unchecked. He congratulated Dr. Knowles, of Montana, upon the recent State dairy inspection law enacted. Regarding glanders he advised the killing of reacting animals and reimbursing the owner, which plan he thought would be advisable as continuing in quarantine of reacting animals, which required to be tested several times, would prove as expensive to the State as to pay a reasonable price for the animal and destroy it as soon as it reacted. It was pointed out by the President that the strict enforcement of the quarantine laws were the means of protecting the United States from the importation of various tropical diseases which were more or less common in other countries. He urged that members and all who were eligible to membership in the Association should join earnestly and continuously in an effort for progress along the broad lines that have characterized the work of this Association. One point particularly worthy of mention in the President's address was his request that "the different States should lend their support as State officials to encourage liberal federal appropriations for the Bureau of Animal Industry," and as the work of the sanitary officers is recognized, appropriations for carrying on the work will be obtained more easily.

The Secretary submitted his report, which was read and adopted.

On motion, the President appointed a committee of three to look up data on the transmissibility of tuberculosis from animals to man.

On motion, the President also appointed a committee of three to devise means for greater uniformity of sanitary work in the various States. This motion aims toward a very desirable end. If the various States had uniform regulations and rules govern-

ing the control and suppression of contagious diseases among stock, the work of sanitary officers in various States would be much lightened and increased in efficiency.

An interesting phase of these meetings is the five-minute talks, given by the officials of the various States represented, on conditions existing in their State. The programme was full of interesting papers and discussions :—

"Extermination of the Fever Tick in Southeastern States," Dr. Tait Butler, State Veterinarian, North Carolina.

"Quarantine Conditions in Oklahoma," Thos. Morris, Member Sanitary Board, Oklahoma.

"Federal Inspection as a Means of Controlling Scabies in Cattle and Other Range Stock, Dr. M. E. Knowles, State Veterinarian, Montana.

"Lime and Sulphur Dip as an Effective Cure for Scabies," Dr. W. A. Thomas, State Veterinarian, Nebraska.

"Hæmorrhagic Septicæmia, Its Cause and Best Means of Prevention," Dr. L. C. Tiffeny, Assistant State Veterinarian, Illinois.

"The Inspection of Cattle Handled by Express Companies and Other Carriers for Dairy and Breeding Purposes, and its Effect in Preventing the Spread of Contagious Diseases," Dr. E. T. Eisenman, State Veterinarian, Kentucky.

"Report of Peculiar Case of Poisoning in Cattle," W. C. Barnes, Member Sanitary Board, New Mexico.

"Some Observations upon the Suppression and Control of Communicable Diseases among Domestic Animals," Dr. Austin Peters, Cattle Commissioner, Massachusetts.

Each paper brought out a lengthy discussion, and it was remarked by several who had attended the American Veterinary Medical Association meeting that the discussions were much more free than at that meeting.

The following officers were duly elected :

President—Hon. W. P. Smith, Monticello, Ill.

Vice-President—Hon. W. J. Moore, San Antonio, Texas.

Secretary—Veterinarian S. H. Ward, St. Paul, Minn.

The committee on uniformity of State laws consisted of Chairman M. E. Knowles, S. H. Ward, and M. M. Hankins. It was recommended by them that where any State desires to protect itself against the introduction of tuberculosis from other States that the Bureau of Animal Industry be requested to assist such State by such restrictions as will not interfere with the free movement of fat cattle to slaughter or other cattle for

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feeding. It was also recommended by this committee that each State publish a list of its veterinary sanitary officers and agents and furnish the authorities of other States with copies of such lists, and revisions from time to time, in order that State officers may be known. They also earnestly recommended a free interchange of regulations to the end that the several State authorities may harmonize their regulations.

A special committee on tuberculosis, consisting of Drs. Glover, Cary, Dinwiddie, Allen and Morris, reported that the disease is gradually extending its limits in many States and Territories. They suggested that the Federal, State and municipal authorities should take active and efficient steps toward checking the extension of this disease; that the tuberculin test is the most reliable means of detecting tuberculosis in the living animal; that the tuberculin test should be made by the Bureau of Animal Industry in all interstate trade of breeding cattle; that in those instances where valuable cattle can be safely and profitably handled by the owner, the Bang method is recommended. This committee recommended further that the inspection of breeding and dairy barns should be made more frequent by competent veterinary inspectors, special attention being given to ventilation and open air exercise of dairy cattle.

The committee on line and open season, consisting of Drs. Lucky, Lamb, Cary, Beckett, Knight, Cols. Dean and Bolton, reported.

The committee on statistics regarding the transmissibility of tuberculosis from animal to man, consisting of Cary, Lucky, and Thomas; the press committee, consisting of Drs. Lovejoy, Klein, and Knowles; and the committee on resolutions, consisting of Drs. Tiffeny, Wallace and Reynolds, reported.

The success of this meeting was largely due to the untiring efforts of President J. C. Norton. The Association has among its members some very active and earnest workers, and must continue to grow in strength and helpful influence.

The next annual meeting will be held at Guthrie, Oklahoma.

S. H. WARD,

*Secretary and Treasurer.*

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THE hopes—or fears—that electric tramways and automobiles would promptly exterminate horses in cities have so far proved unfounded. Paris, which has more automobiles than any other city, still has over 90,000 horses, which is only about 1000 less than last year.—(*Brooklyn Eagle.*)

## NEWS AND ITEMS.

*REVIEW* readers are urgently requested to send in for publication personal items of news concerning themselves or their professional friends; legislation; extraordinary circumstances encountered in practice; or any news that is calculated to interest their fellow-readers. It is confidently believed that by a greater concert of action in this direction all will be benefited, and that this publication will thus be rendered a better medium of communication between its large family of professional readers. Its circulation is now much greater than was ever accorded to a veterinary publication in America, and it is the desire of the publishers to make it more acceptable with each issue.

MISS GERTRUDE HUFF, daughter of Dr. Wilson Huff, of Rome, N. Y., was married on August 30, to Mr. Harlow Higby, of the same city.

DR. WILFORD D. WELSH, of Frankfort, Ky., who had recently located at Clare, Mich., died on July 5, from peritonitis, after five days' illness.

DR. E. M. SUIGEON, formerly of Williamston, Mich., has returned from the Philippines, where he has been for the past two years, and has located in Pigeon, Mich.

DR. GEO. R. WHITE, Nashville, Tenn., was judge of harness horse classes at the Tennessee State Fair, held at Columbia, Maury County, Tennessee, September 20th to 24th.

It is understood that Dr. N. S. Mayo, professor of veterinary science at the Kansas Agricultural College, has accepted under the Cuban Government a place equivocal to our own office of Chief of the Bureau of Animal Industry. He is now in Havana looking over the situation.—(*Brooklyn Eagle*, Sept. 8, 1904.)

DR. W. A. GIFFIN, of Detroit, former Secretary-Treasurer of the Michigan State Veterinary Medical Association, who was compelled, owing to a fracture of the hip a few years ago, to discontinue the practice of veterinary medicine, has taken a course in human dentistry and is enjoying a good practice in that profession.

LAVAL UNIVERSITY, MONTREAL.—The lectures in the veterinary department of this university's medical school will begin on September 30th. Bacteriological, chemical, and pathological laboratories will be added for the exclusive use of veterinary students. M. Génereux, V. S., and Professor William Derome, a former student of the Pasteur Institute, of Paris, have been added to the teaching staff.—(*New York Medical Journal*, Sept. 17.)



DR. WILLIAM H. PENDRY, of Brooklyn, N. Y., who has the proud distinction of being the father of the first veterinary law ever placed upon the Statute books of any State in this country (the New York law of 1886), has been nominated by the Republicans of the Twentieth Assembly District of Kings County for Assemblyman. Dr. Pendry represented this district in the Legislature of 1902, and was renominated the following year, but suffered defeat, the district being normally Democratic. If he is successful, he may be relied upon to defeat pernicious veterinary bills.

DOG SAVES MAN FROM QUICKSAND.—George Shreeves, an octogenarian sailing captain, retired, was saved from death at Sag Harbor, L. I., by his St. Bernard dog. Shreeves was walking along the shore on his way to visit a fisherman, and, owing to his poor sight, failed to see the quicksand ahead. He slipped in and began to sink. The dog, with almost human intelligence, began to pull at his clothes in an effort to release him. Shreeves was unable to help himself, and kept sinking, despite the efforts of the dog. The animal, after tearing his master's clothes in his efforts to pull him out, began to bark in a frenzied manner. Shreeves was down to his waist when the dog's cries attracted the attention of George Bennett, who was driving near the scene. Bennett, after an hour's work, succeeded in pulling Shreeves free. He was exhausted and fell beside his dog. The dog is a large one and beautifully marked. It is unusually intelligent, and wealthy summer residents of Sag Harbor have offered Shreeves large sums for him, but the sailor says money could not buy the animal.—(*New York World*, Sept. 22.)

THE ST. LOUIS MEETING OF THE A. V. M. A.—Perhaps no body of men are more closely associated with the welfare of the immense live stock interests of this great country than are those who constitute the recognized veterinary profession of America, and the American Veterinary Medical Association stands in a similar relationship to the great family of the lower animals as does the American Medical Association to those a little higher up the scale of intelligence, the human family. But, although, in some respects, the two branches of medical science are separate and distinct, in others they are inseparable; for, many of the fatal maladies of animals, which have to be controlled by the veterinarian, are communicable to the human being. And not only is this the case in the living, but diseased animal, but the very meat consumed by civilized humanity is safeguarded

by the veterinarian in one of the most important branches of his professional work, viz.: Meat inspection in our great cities. Every day, then, a closer relationship between the two great branches of medicine is being made manifest, and this is being evidenced by the great interest taken in veterinary meetings, such as the American Veterinary Medical Association, by some of the leading medical sanitarians of the country. The forty-first annual meeting of the above-named Association was held in St. Louis on the 16th, 17th and 18th of August, and was attended by members ranging from Louisiana to Canada and from the Atlantic to the Pacific; and to show the great interest taken in the fixture by foreign countries, it may be stated that the Emperor of Japan delegated Dr. Keitaro Tsuno, Professor of Veterinary Sanitary Science and Police in the Imperial University at Tokio, to represent the Government of the Mikado on that occasion. To many in the South who know the veterinarian only as an empyric and self-assumed "hoss doctor," this widespread interest in veterinary medicine must strike them as somewhat of a revelation. The advance of the educated veterinarian in the Southern States, however, is fast gaining in rapidity, and it cannot be many decades before we will have as many prominent men in the profession as are to be found in any other section of the country, who have had many years the start of us. In fact it is extremely gratifying to know that our own State, Louisiana, has a higher percentage of members in the American Veterinary Medical Association than any other State in the Union. This is a most impressive fact when it is considered that fifteen or twenty years ago she was hardly known in veterinary circles. Invitations from all over the country were sent in for the subsequent meeting, and the writer, who had the privilege of being in attendance at St. Louis, had the honor of inviting the Association to hold its next meeting in the City of New Orleans. If it should be accepted, as we sincerely trust it may, it will give our people an opportunity of seeing what a representative body of American (and this takes in the whole Continent) veterinarians in session look like, and which we have no doubt would be productive of great good, both to the profession and to the live stock interests of the State and of the South.—(Dr. W. H. Dalrymple, in the "New Orleans Picayune.")

THE VALUE OF THE ZEBROIDE.—Thomas H. Dale, M. R. C. V. S., District Veterinary Surgeon, Potchefstroom, South Africa, in the course of an article in the *Transvaal Agricultural Journal*, for July, on "The Utility of the Zebra Hybrids,"

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presents the following evidence in support of their character and qualifications: "Mr. Carl Hagenbeck, of Hamburg, cannot speak too well of them, and, as he has kept them for use, his experience is invaluable, so I quote his exact words as used in a letter to me, dated 6th April last. He says:—'I beg to inform you that the zebroides I got from Professor Ewart turned out to be excellent animals. They are hard working and do about 50 per cent. to 60 per cent. more work than any horse. They are quite docile, and good for riding as well as for driving in harness. A friend of mine in South Russia, who has bred zebroides for the last six years, has had the same good experience with them, and a gentleman in the Brazils writes that they are so exceptionally good that if mule breeders knew the value of these zebroides they would soon give up mule breeding, and breed nothing else but zebroides. I have sent six of mine to the St. Louis Exposition, and I hope that the mule breeders of the United States of America, when they see what good animals they are, will commence breeding zebroides instead of mules. As there are plenty of zebras in South Africa, I can only recommend to commence zebroide breeding.' . . . In reply to a query of mine about the size of zebra hybrids, Professor Ewart states:—'About the size of zebra hybrids there need be little difficulty; two of the hybrids I bred with a 12.2 Burchell zebra stallion are quite 14 hands. They are now at work in a mountain battery in the north of India. If quite large mules are wanted, the 15 hands Grevy's Zebra of Somaliland can be used, with Shire or Clydesdale mares; he would get 16 hands mules. Probably for work amongst the mountains the common mule will be hard to beat, for the common ass is essentially an upland form. It might be said, why not use the mountain zebra (still found in South Africa and Angolaland) to produce mules for mountain work? The reply is, the mountain zebra has hitherto proved most untractable; he is not likely to produce mules that will readily consent to work.' These very interesting and conclusive letters need no comment, but from them it will be noted that the experimental stage is passed, and it now only remains to be seen what private enterprise will do." There are published in conjunction with Dr. Dale's article a large number of beautiful photos of sires, dams, and hybrids, some of them in harness, others under saddle, and many in the field.

**PRESENT STATUS OF THE AUTOMOBILE IN NEW YORK CITY.**—Within the past year or two many well meaning people

have predicted that within a very short period of time all heavy trucking in the large cities would be done by automobile instead of horse power. To a certain extent this prophecy has come true in New York. Some of the large department stores have adopted the automobile system for delivering large quantities of parcels at distant points, and so far as any expression has been heard the experiment has proved satisfactory; but it is also true that where these stores thus employ one automobile they employ dozens of horses and wagons for the same purpose. Early last winter some of the large brewers concluded that they could deliver their goods to better advantage with automobiles than with horses and wagons and for several weeks these great automobile wagons loaded with kegs of beer were one of the street sights of New York. But after giving the experiment a fair trial it was found that horse power was much more economical and satisfactory in every way, and the expensive automobile wagons were disposed of for whatever they would bring or converted to other uses and for several months nothing but the magnificent horses for which the brewery owners have become famous have constituted the motive power for propelling the huge vehicles through the streets and no one now believes that they will be superseded by automobiles in this generation at least. New York has a greater number of automobiles used for private and public purposes than any other city in this country, and if one visits Riverside Drive or Central Park during the fashionable driving hours he will be likely to conclude that in the near future the automobile will certainly supplant the horse as a means of locomotion for pleasure riding. But this conclusion is based upon a false hypothesis. The numerous motor vehicles seen on the popular thoroughfares spoken of represent only a portion of the wealthy fashionable element which is but a small percentage of the pleasure drivers of New York. Some attempt has been made to introduce automobiles in the public hack service of the city, but up to this time the effort has not proved very successful. While at the large hotels and at the public hack stands a few automobiles will be found ready to transport passengers to any part of the city the old fashioned cabs and carriages drawn by horses outnumber them greatly, and now that the experiment has been given a thorough test it is not believed by those who have given the subject consideration that horse power will ever be supplanted as a means of street locomotion by any mechanical device that may be constructed.—(*Correspondence Breeder's Gazette.*)

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## VETERINARY MEDICAL ASSOCIATION MEETINGS.

In the accompanying table will be found the dates, places of meeting, and Secretaries' names and addresses of all the Veterinary Medical Associations of the United States and Canada, so far as obtainable by the REVIEW. Secretaries are urgently requested to see that the organizations which they represent are properly included in the list.

Name of Organization.	Date of Next Meeting.	Place of Meeting	Name and Address Secretary.
American V. M. Ass'n.....	.....	.....	J. J. Repp, 5249 Addison St., Phila., Pa.
Vet. Med. Ass'n of N. J.....	Jan. 14, 1905.	Newark.	G. W. Pope, Athenia, N. J.
Connecticut V. M. Ass'n.....	1st Tu. Feb., '05.	Hartford.	B. K. Dow, Willimantic.
New York S. V. M. Soc'y....	September, 1905	Ithaca.	W. H. Kelly, Albany, N. Y.
Schuylkill Valley V. M. A....	Reading.	Dec. 21, 1904.	W. G. Huyett, Wernersville, Pa.
Passaic Co. V. M. Ass'n.....	Oct. 4, 1904.	Paterson, N. J.	H. K. Berry, Paterson, N. J.
Texas V. M. Ass'n.....	.....	.....	H. D. Paxson, Ft. Worth.
Massachusetts Vet. Ass'n....	Monthly.	Boston.	F. J. Babbitt, Lynn, Mass.
Maine Vet. Med. Ass'n.....	.....	.....	C. L. Blakely, Augusta.
Central Canada V. Ass'n.....	.....	Ottawa.	A. E. James, Ottawa.
Michigan State V. M. Ass'n...	.....	.....	Judson Black, Richmond.
Alumni Ass'n N. Y.-A. V. C....	April, 1905.	141 W. 54th St	W. C. Miller, N. Y. City.
Illinois State V. M. Ass'n.....	December.	Chicago.	W. H. Welch, Lexington, Ill
Wisconsin Soc. Vet. Grad.....	Call of Pres't.	Racine.	S. Beattie, Madison.
Illinois V. M. and Surg. A....	.....	.....	W. A. Swain, Mt. Pulaski, Ill
Vet. Ass'n of Manitoba.....	.....	.....	F. Torrance, Winnipeg.
North Carolina V. M. Ass'n...	.....	.....	T. B. Carroll, Wilmington.
Ontario Vet. Ass'n.....	December, 1904	Toronto.	C. H. Sweetapple, Toronto.
V. M. Ass'n New York Co....	1st Wednesday of each month.	141 W. 54th St	D. J. Mangan, N. Y. City.
Ohio State V. M. Ass'n.....	Jan. 17-18, 1905	Columbus.	W. H. Gribble, Washington C. H.
Western Penn. V. M. Ass'n...	1st Wednesday of each month.	Pittsburgh.	F. Weitzell, Allegheny.
Missouri Vet. Med. Ass'n.....	.....	.....	Stanley Smith, Columbia.
Genesee Valley V. M. Ass'n...	.....	.....	J. H. Taylor, Henrietta, N. Y.
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